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PHOENIX

RESOURCE MANAGEMENT PLAN AND ENVIRONMENTAL IMPACT STATEMENT • DRAFT •



DECEMBER 1987
U.S. Department of the Interior
Bureau of Land Management
Phoenix District • Arizona



NOTICE



This is the Draft Resource Management Plan – Environmental Impact Statement (RMP/EIS) for the Phoenix Resource Area. The BLM will accept written comments on this draft for the next 90 days. These should be directed to:

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RESOURCE MANAGEMENT PLAN AND ENVIRONMENTAL IMPACT STATEMENT

Draft (X) Final ()

The United States Department of the Interior, Bureau of Land Management

1. Type of Action: Administrative (X) Legislative ()

2. Abstract: This Draft Resource Management Plan and Environmental Impact Statement describes and analyzes four alternatives, including a *No Action Alternative*, for managing the public land and resources in the Phoenix Resource Area, Arizona.

3. Comments have been requested from the individuals, groups and agencies listed in Chapter 5.

4. For further information contact:

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5. Draft filed with the Environmental Protection Agency: JAN 29 1988

6. Comments on this Draft RMP/EIS must be postmarked no later than: APR 29 1988

Recommended:

Approved:



Henri Bisson
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State Director
Arizona State Office



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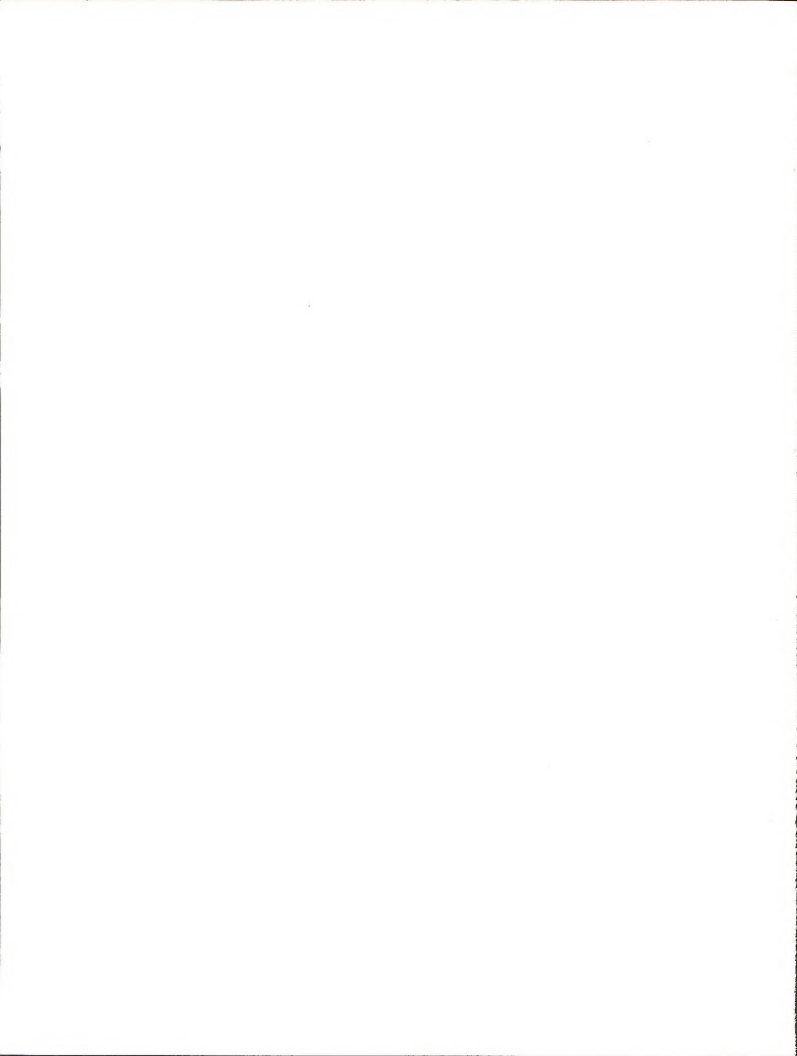
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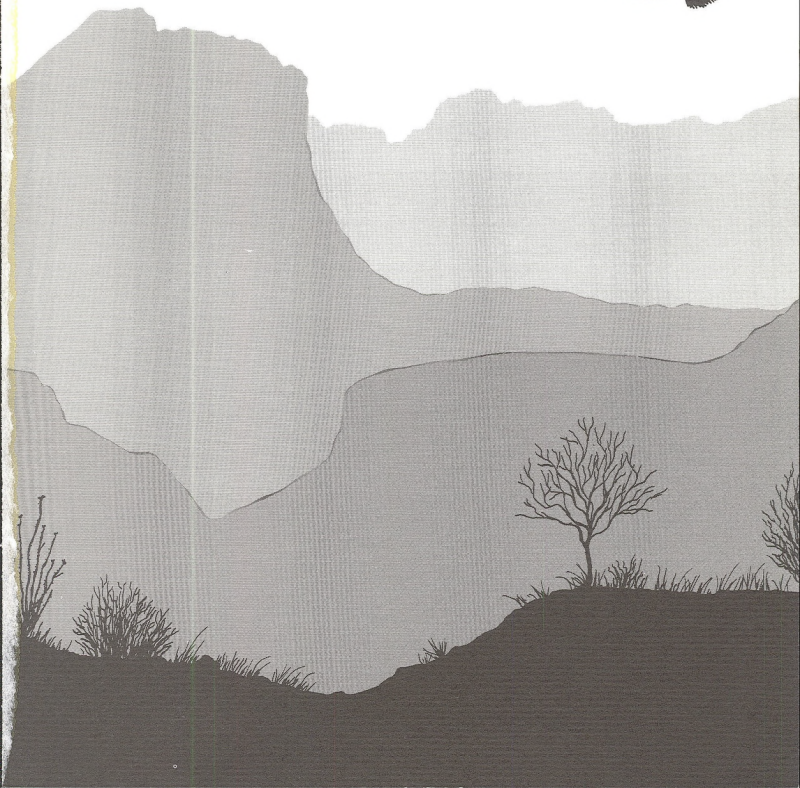
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SUMMARY





SUMMARY

This Phoenix Resource Management Plan/Environmental Impact Statement (RMP/EIS) is being prepared to guide the BLM in its management of the Phoenix Resource Area—about 911,000 acres of public land in two distinct geographic regions.

The northern region, Apache and Navajo counties, encompasses about 229,000 acres of scattered public land lying north of the Sitgreaves National Forest and south of the Navajo Indian Reservation. The southern portion of the RMP area includes 682,000 acres of scattered public land in central and south central Arizona. This southern portion has about 75 percent of the state's 2.7 million people and includes the major metropolitan areas of Phoenix and Tucson. The planning area covers all or parts of eight Arizona counties.

This RMP/EIS updates land use planning decisions in three existing Management Framework Plans (MFPs)—Silverbell, Middle Gila and Black Canyon—which have guided the BLM's management of public land in the RMP area for the past 12 years. The MFP decisions that still have merit are being carried forward and are incorporated into this RMP and those not specifically mentioned in this RMP will be no longer valid.

The RMP/EIS is focused on resolving six key planning issues associated with the management of the RMP area's public land. These six planning issues were identified by the public and the BLM during the RMP scoping period, which began on January 17, 1986. This RMP, through resolution of the six identified issues, is designed to provide a long-term approach to managing public land in the RMP area.

Management direction for two additional issues identified during scoping—rangeland management and wilderness management—has been addressed in previous EISs (i.e., the 1986 *Eastern Arizona Grazing EIS* and the 1987 *Phoenix Wilderness EIS*). Decisions in these two EISs have been carried forward in this RMP/EIS.

The six identified issues are:

Issue 1: Land Tenure Adjustment

Land Tenure Adjustment is the major RMP issue needing resolution. The BLM in Arizona is currently involved in a large-scale state and private exchange program designed to block up land ownerships for more efficient management. Through this RMP/EIS, the BLM will identify a long-range land tenure adjustment program for the RMP area.

Issue 2: Utility Corridors and Communication Sites

To promote a more orderly use of public land, the RMP/EIS will identify preferred routings and sites for major utility and communication site rights-of-way.

Issue 3: Areas of Critical Environmental Concern and Other Areas Requiring Special Management

Scoping brought forward areas and resources which would benefit from special management. Consequently, areas of critical environmental concern (ACECs) and special management areas (SMAs) have been identified in the RMP/EIS.

Issue 4: Off-Road Vehicle Restrictions

ORV restrictions are an issue because of public concern about vehicle use on public land and because BLM policy requires all public land to be designated as open, closed or limited for ORV use.

Issue 5: Recreation Management

This issue was identified by the public and local governments during scoping. The concern focused on the need for the BLM to provide open space recreation opportunities near Phoenix and Tucson and also for the BLM to provide public land for local park development.

Issue 6: Land Classifications

The *Federal Land Policy and Management Act* (FLPMA) calls for a review of all existing classifications in the land use planning process. Consistent with FLPMA, this RMP will identify those classifications no longer useful for their intended purpose and will recommend that these classifications be terminated.

ALTERNATIVES

In response to requirements in the *National Environmental Policy Act* (NEPA) and following guidelines developed by the Council on Environmental Quality (CEQ), four alternative plans were developed

by the planning team to compare the environmental consequences of addressing the planning issues in dissimilar ways.

The alternatives chosen for study in the RMP/EIS are:

ALTERNATIVE A (NO ACTION)

The status quo would remain in effect under this alternative with the BLM retaining management of 911,343 acres of federal surface land as well as all 2.4 million acres of subsurface (minerals) estate. The BLM would acquire no land from any source, nor would any be transferred under the federal *Recreation and Public Purposes Act*, but existing R&PP leases would be honored. Under *Alternative A*, no new utility corridors, communication sites, areas of critical environmental concern (ACECs) or special management areas (SMAs) would be designated.

ALTERNATIVE B (THE PREFERRED ALTERNATIVE)

Alternative B is the BLM's preferred alternative. Under this alternative, the BLM would designate and intensively manage public land within seven Resource Conservation Areas (RCAs). Within these RCAs, the BLM would attempt to "block up" ownership by retaining 451,200 acres of public land it now manages and by acquiring 357,190 acres of state land in exchange for other public land. The BLM will also consider acquiring 119,240 acres of private land within the RCAs through exchange, but only if private land owners initiate the action. Subsurface (mineral estate) ownership within the RCAs would also be consolidated under BLM management. Outside the RCAs, 427,000 acres of scattered public land would be available for disposal, primarily through exchange.

Seven utility corridors that identify priority routes for major utility systems would be designated under *Alternative B*. The utility corridors would follow existing rights-of-way and are routed to avoid areas with high resource values. Five areas that could be developed as communication sites are also identified.

Alternative B calls for earmarking six areas totaling 9,971 acres of public land as Areas of Critical Environmental Concern (ACECs). These are areas containing highly significant historic, cultural, scenic or other natural values. Another 5,680 acres of state and private land would be added to these ACECs upon acquisition by the BLM. ACECs recommended for designation include Tanner Wash, Larry Canyon, White Canyon, Waterman Mountains, Baboquivari Peak and the public land portion

of the Appleton-Whittell Research Ranch. Additionally, Perry Mesa, the site of important prehistoric cultural resources, would be designated an ACEC upon acquisition of 8,480 acres of state land adjoining 960 acres of public land.

Nineteen Special Management Areas, land that would benefit from enhanced resource management, would also be created under *Alternative B*. Nine of these are BLM allotments with potential for improving grazing, watershed, riparian, protected plant or wildlife habitat. On these allotments, cooperative resource management plans (CRMPs) are proposed.

Off-road vehicle travel would be limited to existing roads and trails on the majority of the public land within the RMP area. In addition, some closed areas are identified within ACECs and SMAs.

If the Coyote Mountains and Hells Canyon Wilderness Study Areas are not designated as wilderness, the BLM plans to designate them as Recreation Management Areas under *Alternative B*. Also, under this alternative, five Cooperative Recreation Management Areas (CRMAs) would be established in which the BLM would retain ownership of the land but management and development for recreation would be worked out cooperatively between the BLM and state or local governments. The BLM would use its land exchange authority to acquire nonfederal or noncounty land within the CRMAs, as necessary. CRMAs that would be designated include Lake Pleasant, Black Canyon Trails, San Tan Mountains, Tortolita Mountains and Sawtooth Mountains.

Alternative B also provides for transferring several public land parcels to state and local governments through the *Recreation and Public Purposes Act*. Five BLM land classifications in the RMP area will be terminated under this alternative.

ALTERNATIVE C

Alternative C differs principally from *Alternative B* in the alignment of RCA boundaries, i.e., adjustments to the boundaries of the Tanner Wash, White Canyon, Silver Bell and Baboquivari RCAs. *Alternative C* proposes to drop the Picacho Mountains from RCA consideration and make it a CRMA.

Seven utility corridors would be designated under *Alternative C*. Six of the corridors would be the same as in *Alternative B* except that corridor routing would be somewhat affected by boundary changes of the RCAs. The seventh corridor would be rerouted to follow existing transmission lines across Perry Mesa instead of along Interstate 17.

Four communication sites under *Alternative C* would be the same as those in *Alternative B*. Confidence Peak, however, would be closed to further site development.

Because of overlapping boundaries proposed under *Alternative C*, Perry Mesa and Larry Canyon ACECs would be combined. The 18,000-acre Perry Mesa ACEC would be designated only if the BLM acquires state lands within the ACEC boundary. However, the designation of Larry Canyon (80 acres) would not depend on the acquisition of the Perry Mesa land. *Alternative C* differs from *Alternative B* by recommending expanded boundaries for the Waterman Mountain, White Canyon, Perry Mesa and Tanner Wash ACECs. Under *Alternative C*, the BLM would develop cooperative resource management plans (CRMPs) on nine BLM allotments, which are identical to those listed in *Alternative B*.

Under *Alternative C*, motorized vehicular travel on public land would be limited to existing roads and trails except that vehicular travel would be prohibited within some ACECs and special management areas. The Coyote Mountains and Hells Canyon wilderness study areas would be designated as recreation management areas if they are not designated as wilderness areas. Also, under *Alternative C*, three cooperative recreation management areas would be established, two fewer than under *Alternative B*.

Another difference is that *Alternative C* generally recommends less public land disposal under the *Recreation and Public Purposes Act*.

Five land classifications recommended for termination under *Alternative C* are the same as those under *Alternative B*.

ALTERNATIVE D (TOTAL DISPOSAL)

Two purposes are served by *Alternative D*, which calls for disposal of all public land in the planning area: (1) It fills in the full range of alternatives in this environmental impact statement, as required by the *National Environmental Policy Act* (NEPA), and (2) it assesses the impact that private exchanges might have if, in the future, the BLM were to use public land of high economic value to exchange for private land high in resource values.

Under *Alternative D*, all public surface and subsurface land would be disposed of, primarily through exchange.

No utility corridor or communication sites would be identified and new rights-of-way applicants would have to deal with the new landowners.

Under *Alternative D*, no ACECs or SMAs would be designated.

No formal ORV designations would be made under this alternative. Use of motorized vehicles would be under jurisdiction of local laws and regulations.

The BLM would dispose of all recreation land and the new owners would determine the requirements for access.

All land classifications would be reviewed and those found no longer valid would be terminated or revoked and the land made available for disposal.

Table S-1 is a summary of the expected impacts to the affected environmental elements under each alternative.



TABLE S-1
Summary of Environmental Impacts by Alternative
Bureau of Land Management, Phoenix District, Arizona

Environmental Issue	No Action Alternative A	Preferred Alternative B	Alternative C	Alternative D
LAND USES	Inefficient management of public land caused by checkerboard and split estate ownership patterns would continue; R&PPA land transfers would stop, causing delay or elimination of some county and state recreation projects; no new utility corridors or communication sites would be established, probably resulting in the proliferation of new sites and rights-of-way; no change in PILT or land use authorizations would result.	Implementation would best meet the BLM's land tenure objectives although public land acres would be reduced 12%; consolidating surface/subsurface ownership into 7 RCAs would improve management efficiency and reduce costs; transfer of 5 parcels (3,781 acres) under the R&PPA would meet local governments' needs for low cost public land; land use authorizations would be precluded on 14,691 acres in 6 ACECs; placement of utility corridors and 5 communication sites would meet utilities' needs but increase future construction costs somewhat; there would be a net loss of about \$215,000 in PILT to 4 counties.	Public land would be reduced 2% but consolidating surface/subsurface ownership in 6 RCAs would form a more manageable land pattern and result in reduced costs; transfer of 4 parcels (2,552 acres) under the R&PPA would only partially meet local governments' needs for low cost public land; land use authorizations would be precluded on 24,574 acres in 6 ACECs; designation of 7 utility corridors and 4 communication sites would meet utilities' needs; identifying a utility corridor across Perry Mesa would result in reduced construction costs; 5 counties would lose \$225,295 in PILT.	All 911,340 acres of surface and 2,147,990 acres of mineral subsurface estate would be identified for sale or exchange and made available for BLM exchanges in other parts of the state or for private sales; transfer of low cost public land to local governments under the R&PPA would be eliminated, increasing costs to local governments buying land for recreation use; the loss of \$372,245 in PILT to 5 counties and costs for using private or state land rights-of-way would place severe restrictions on local governments and private industry.
LOCATABLE MINERAL DEVELOPMENT	Locatable mineral development would continue in a favorable environment without significant impacts.	Expect a 50% reduction in mining notices and a 75% reduction in MPOs filed in the RMP area, caused primarily by land disposals south of Tucson.	Impacts are the same as those described under <i>Alternative B</i> .	Exploration for and development of new discoveries would drop by 95%, reducing the number of active operations in the RMP area from the current 40 to 2.
WATERSHED CONDITION	Negative impacts from uncontrolled ORV activity would occur on about 182,000 acres.	Significant improvements would occur to 204,000 acres on 6 Category IV allotments; ORV designations would allow existing acceptable conditions on Category II allotments to be maintained.	Impacts would be similar to those described in <i>Alternative B</i> except that due to RCA boundary differences, 1,000 fewer acres would be improved.	No significant changes from current conditions would occur because transfer from public ownership would prevent most future ORV damage.
RANGELAND MANAGEMENT	Ranch stocking rates and ranch values would be unchanged; checkerboard land ownership would, however, continue to complicate ranch management.	The value of ranches lying outside RCA boundaries would be reduced if federal grazing leases were cancelled and not replaced by state leases; value reductions would average 27% for small ranches, 9% for medium-sized ranches and 3% for large ranches; consolidating public land on ranches in the RCAs would eliminate management complications caused by checkerboard ownership.	The impacts are the same as those described in <i>Alternative B</i> .	Ranch operations would be disrupted in development areas but would continue elsewhere; the expense of leasing private range, however, would greatly increase operating costs; the value of ranches losing federal leases would be reduced 32% on small operations, 24% on medium-sized ranches and 8% on large ranches; ranch operations and values would remain unchanged on future state leases.
AREAS OF CULTURAL SIGNIFICANCE	Continuation of current management would benefit 4 of the 10 significant cultural areas; negative effects of public visitation, natural degradation and vandalism would continue on the remaining 6 areas and result in the loss of 10-25% of their information, conservation and public values.	Land acquisitions and ACEC/SMA designations which specify management for Santa Ana del Chiquiburitac, Avra Valley, Reymert Townsite, Middle Gila and Perry Mesa would result in long-term positive effects on at least 285 sites; 105 sites on land identified for disposal would suffer a 10-25% loss of cultural value.	Land acquisitions and ACEC/SMA designations specifying management of high value cultural resources in the Santa Ana del Chiquiburitac, Central Avra Valley, Middle Gila, Reymert and Perry Mesa cultural resource areas would provide long-term positive effects on at least 300 sites; 105 sites on land identified for disposal would suffer a 10-25% loss of cultural value.	Active federal protection of cultural values would cease; cultural resource information, conservation and public values would be seriously impaired due to theft and vandalism; 20-25% of the cultural values of at least 390 sites, including those in one <i>National Register</i> site and two <i>National Register</i> districts, would be lost.

TABLE S-1 (Continued)
Summary of Environmental Impacts by Alternative
Bureau of Land Management, Phoenix District, Arizona

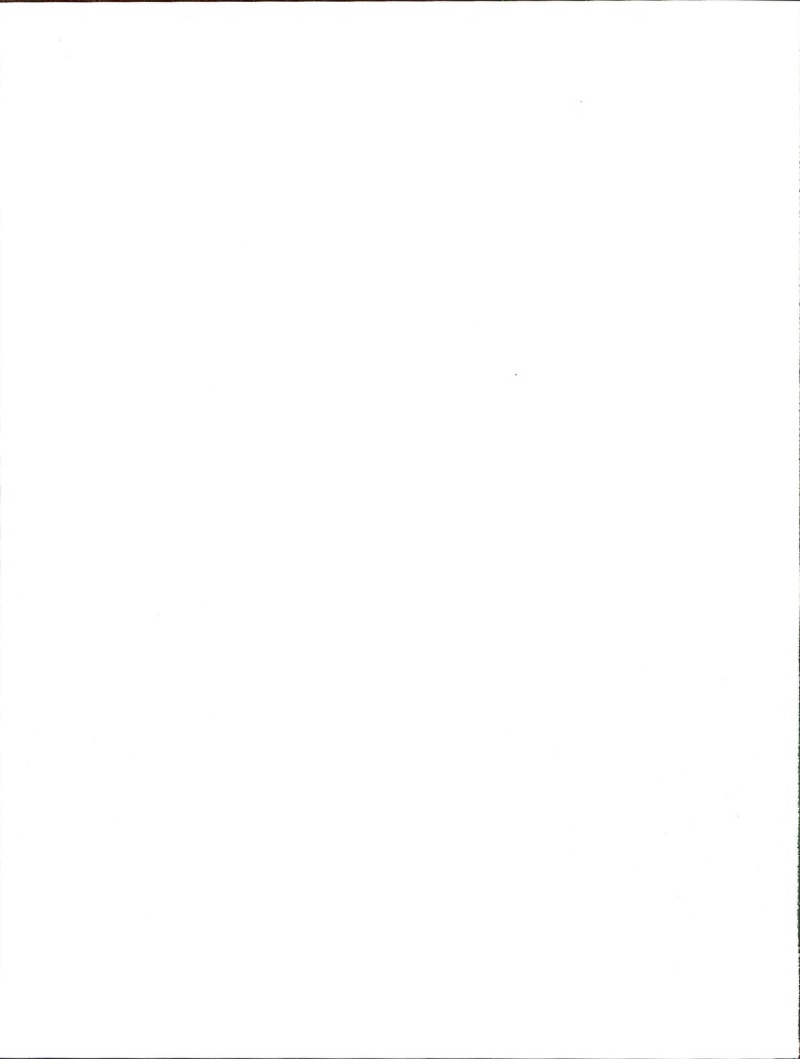
Environmental Issue	No Action Alternative A	Preferred Alternative B	Alternative C	Alternative D
VEGETATION	Implementation would allow a downward trend to continue on 4 grazing allotments covering 140,305 acres.	Implementation would result in a 25% improvement of ecological site condition on 9 allotments (256,444 acres of public land).	Impacts are the same as those described under <i>Alternative B</i> .	The average ecological condition on 6 allotments covering 192,880 acres would be reduced from fair to poor over the long term.
RIPARIAN HABITAT	All 94 miles and 1,070 acres would be retained but not actively managed to restore or improve condition, existing condition and trends would decline in 3 riparian areas (9.1 miles).	Acquiring 53 miles of habitat would increase public riparian habitat by 36%; 54% (43 miles) of all habitat would be managed to improve current condition.	Impacts are similar to those described under <i>Alternative B</i> except that public land adjacent to Zion and Piaccho reservoirs would be identified for disposal, having no effect on aquatic and wildlife communities.	There would be no management to maintain, restore or improve values; it is expected that cumulative impacts from surface disturbance activities on the watershed as well as in riparian habitat would result in impairment of riparian values along 7.6 miles of the total 94 miles of public habitat.
SPECIAL STATUS PLANTS				
Peebles Navajo Cactus	Retention of currently occupied public land habitat (20%) would maintain the species, but populations on nonpublic land (80%) would disappear.	Land acquisition would result in a 480% increase in occupied habitat on public land; extending federal protection to all known populations is expected to prevent extinction.	Land acquisitions would result in a 785% increase in occupied and suitable habitat on public land; extending federal protection to all known populations and potential habitat is expected to prevent extinction and provide for recovery and delisting.	Without federal protection, the species would decline over the long term and probably become extinct.
Tumamoc Globeberry	Retaining all public land habitat would have an overall positive impact because 2.5% of the known populations would be protected under the provisions of the ESA; even so, some plants growing on small, isolated public parcels near Tucson would eventually be lost due to habitat disturbance caused by adjacent land developments.	Land tenure adjustments would result in a 2% reduction in federally protected habitat but would consolidate public ownership of habitat with 40 of the 48 plants known on public land; long-term protection within consolidated public land blocks is expected to outweigh short-term effects of disposing of land with 8 plants and be beneficial to federal efforts to protect the species.	Public land habitat would increase 30%; land acquisitions would enhance the BLM's ability to manage the species; benefits to habitat for 41 plants and protection and management of large tracts in known and suitable habitat would benefit the species and outweigh short-term negative impacts of disposing of land with 7 plants.	Implementation would result in negative impacts because 2.5% of the known populations and 13% of the high to moderate potential habitat would lose federal protection.
Nichol Turk's Head Cactus	Although 50% of the population would be federally protected, expected future habitat damage from ORV and mining activity would make recovery and delisting of the species unlikely.	Land acquisitions would increase federally protected habitat by 58%; protection measures under ACEC designation are expected to provide for recovery of the species.	Land acquisitions would increase federally protected habitat by 134%; by including all known habitat outside the Tohono O'odham reservation under ESA and ACEC protection, expansion of populations and eventual delisting is probable.	This would severely impact the species to the point where future delisting would be unlikely.
Thornber Fishhook Cactus	Retention of 8,000 acres of occupied habitat would offer little benefit to the species since the BLM administers less than 1% of the estimated population.	Consolidating federal ownership through land acquisitions would increase protected habitat by 13%; even with the loss of some known habitat through disposal, long-term benefits would be positive.	Consolidating federal ownership through land acquisition would increase federally protected habitat by 150%, contributing to but not critical to conservation of the species.	Because most known populations of the plant are on nonpublic land, there would be only a minor negative impact on the current federal effort to conserve the species.
Sword Milkvetch	Retaining 640 acres of occupied habitat would help conserve the species but would not prevent federal listing as threatened or endangered.	Federal protection of occupied habitat would be enhanced but not to the point where federal listing would be prevented.	Impacts are the same as those under <i>Alternative B</i> .	Disposal of 640 acres with a population would be a major negative impact to the conservation of the species; it would make long-term survival of the species precarious because survival

TABLE S-1 (Continued)
Summary of Environmental Impacts by Alternative
Bureau of Land Management, Phoenix District, Arizona

Environmental Issue	No Action Alternative A	Preferred Alternative B	Alternative C	Alternative D
Paperspined Cactus	The BLM would retain 40,000 acres of habitat including 3,840 acres containing 6 of the 16 documented localities in Arizona; although checkerboard ownership in the area complicates management and protection of habitat, retention would be a slight benefit to the species.	Disposal of public land habitat would contribute to a decline of populations; although the decline of a species over part of its range may contribute to federal listing, most of the populations occur in New Mexico and habitat loss in Arizona is not expected to affect its status.	Impacts are the same as those under <i>Alternative B</i> .	would eventually be dependent upon a single population within Petrified Forest National Monument. Impacts are the same as those under <i>Alternative B</i> .
WILDLIFE				
Gila Topminnow	Populations lost to flooding would not be replaced as in the past, thus affecting federal efforts to recover the species; these efforts will be set back further by not introducing the fish into 8 suitable sites.	Maintaining an existing population and reestablishing fish into 5 sites within their historic range would assist in the eventual recovery of the species.	Impacts would be similar to those under <i>Alternative B</i> except that recovery efforts would be improved by identifying 6 sites for reintroduction instead of 5.	Federal recovery efforts would be set back by identifying for disposal 35% of BLM's identified reintroduction sites.
Desert Pupfish	The BLM's objective to maintain the Mesquite Spring population is met but the federal recovery effort is set back by not reintroducing the fish into 4 additional suitable sites.	The Mesquite Spring population would be managed and monitored and fish introduced into 3 suitable sites, thus increasing the occupied sites in Arizona by 57%; this, along with the acquisition of other suitable sites, will assist in delisting the species.	Impacts would be the same as those under <i>Alternative B</i> .	Federal recovery efforts would be severely hampered, eliminating 14% of Arizona's federally protected populations and reducing by 35% the number of identified reintroduction sites in Arizona.
Little Colorado River Spinedace	1.5% of total habitat (8% of the Silver Creek habitat) would remain under federal protection; retaining the only federally protected habitat along Silver Creek would contribute to maintaining the species in the drainage.	1.5% of total habitat (8% of the Silver Creek habitat) would be removed from federal protection under the ESA.	Impacts would be the same as those under <i>Alternative B</i> .	Impacts would be the same as those under <i>Alternative B</i> .
Desert Bighorn Sheep	The current population would decline 50% from the current 50-60 animals; the BLM's objective to maintain a viable population and increase the capability of the habitat would not be met.	The existing population of 50-60 is expected to remain stable; the BLM's objective to maintain a viable population in the Silver Bell-West Silver Bell Mtns and to increase habitat capability would be met.	Impacts would be the same as those under <i>Alternative B</i> .	Cumulative habitat disturbances and losses of crucial habitat would lead to the loss of the population over the long term.
Desert Tortoise	Public land within the range of the species would be retained but not actively managed to protect and identify crucial habitat; localized downward population trends would be expected to occur on 10% (83,000 acres) of public land habitat.	Public land habitat would increase by 9% and 100% of the known important habitat would be retained; the BLM's objective to maintain the capability of important habitat would be met.	Although downward population trends in the Picacho Mtns are expected, the viability of this and other important populations in the RMP area would be maintained.	20% of public land habitat within general tortoise range would be lost, including 75% of the important habitat.
Pronghorn	Sycamore Mesa would continue to support populations, but habitat capability would not increase; the Sycamore Mesa-Chino Valley travel corridor would	Through land acquisitions, public land habitat on Sycamore Mesa would increase by 590% and be actively managed; numbers would increase slightly	Impacts are the same as those under <i>Alternative B</i> .	Public land comprising 2% of total habitat in Apache and Navajo counties would be abandoned as a result of subdivision development; public land habitat on Sy-

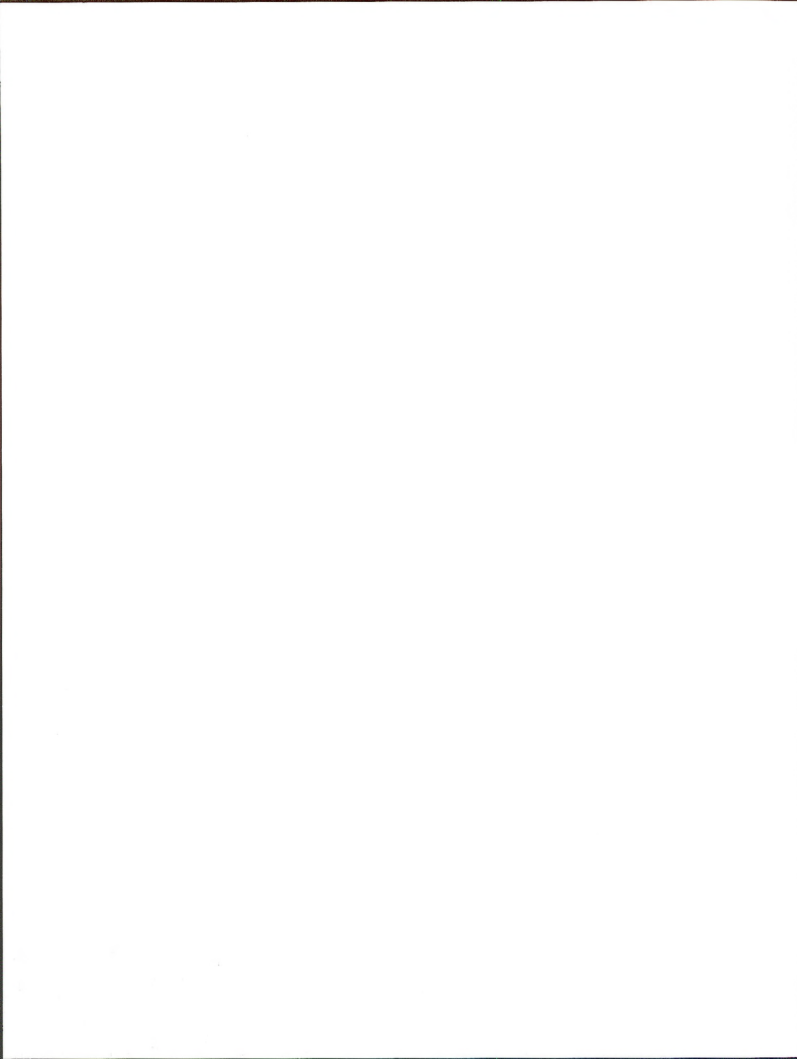
TABLE S-1 (Continued)
Summary of Environmental Impacts by Alternative
Bureau of Land Management, Phoenix District, Arizona

Environmental Issue	No Action Alternative A	Preferred Alternative B	Alternative C	Alternative D
	lose value as it becomes restricted due to expected land developments; 2% of the total habitat in Apache and Navajo counties would eventually be abandoned as a result of subdivision development, but the remaining public land (5% of the total) would continue to provide high priority habitat.	even though restricted movement through the travel corridor would lead to geographical isolation; 2% of the total habitat in the Apache and Navajo counties would eventually be abandoned as a result of subdivision development, but the remaining public land (5% of the total) would continue to provide habitat.		camore and Perry mesas totaling 9,100 acres would continue to support the current numbers, but development of exchanged land in the travel corridor would result in their geographical isolation.
Mule Deer	4% (68,000 acres) of the RMP area's total medium to high density habitat would be lost due to downward trends caused by land development; about 12% (205,000 acres) of the total public land habitat would continue supporting medium to high density populations.	Land acquisitions would increase public land habitat supporting medium to high density populations by 42% and total habitat capability would increase by 3% because of ORV designations and improvements planned under updated HMPs.	Land acquisitions would increase public land habitat supporting medium to high density populations by 17% and total habitat capability by 3% because of ORV designations and improvements planned under updated HMPs.	About 4% (10,800 acres) of the public land supporting medium to high density populations in the RMP area would lose value for deer; additional declines would result from restrictions on movement and access to other use areas.
Javelina	Public land comprising 17% (475,000 acres) of the RMP area's total habitat would continue to support medium to high density populations; trends would decrease on 2% (56,000 acres) of public land habitat due to impacts from the development of adjacent land and increased off-road travel.	Public land supporting medium-high density populations would increase by 17% acquisition of state land in 5 RCAs would benefit javelina by blocking up areas of important habitat and maintaining or improving habitat quality; the BLM's objective to increase habitat capability by 4% would be realized; ORV designations would prevent localized javelina losses caused by heavy off-road vehicular use.	Medium to high density public land habitat would increase 10%; acquisition of state land in 5 RCAs would benefit javelina by blocking up areas of important habitat and maintaining or improving habitat quality; habitat support capability would increase by 4%; ORV designations would prevent localized losses caused by heavy ORV use; numbers would be expected to increase in areas where habitat improvement is significant.	About 10% of the current 526,000 acres of medium to high density habitat in the RMP area would, in the long term, lose its value for javelina.
WILD, FREE-ROAMING BURROS	The Lake Pleasant burro herd would decline 50% from the current 60 animals to 30 over the long term.	A 3% increase in public land for burro use, the reduction in harassment incidents through ORV restrictions and an activity plan detailing other protection measures would allow for the maintenance of an 80 animal herd without negatively impacting vegetation.	A base herd of 60 would not be a genetically viable herd; periodic introductions of new burros from outside the herd would be required; additional water developments and fencing would be necessary to keep burros from the western portion of Lake Pleasant and Tule Creek.	Burros would be removed from the Lake Pleasant use area and be offered for public adoption.
RECREATION USE	Due to increasing heavy public use, the quality of recreation experiences in the Lake Pleasant and Sawtooth/Silver Bell Mountain regions would decline due to unsupervised visitor use and ORV traffic; recreation opportunities elsewhere would generally remain the same; the needs of local governments to provide intensively managed recreation sites near urban populations would not be met; since public land would not be available for R&PP and CRMA uses, 9 parks and recreation areas would not be developed or expanded.	Consolidated public ownership of land in 7 RCAs would provide expanded open space recreation opportunities near major metropolitan centers; 5 CRMAs would allow development of intensively managed recreation areas and 5 R&PP leases would significantly improve local governments' ability to provide urban-oriented recreation facilities.	Consolidated public ownership of land in 6 RCAs would result in expanded opportunities for open space recreation near major metropolitan centers and more intensively managed recreation areas would be available in 4 CRMAs.	Public land needed for open space recreation would be severely reduced and prohibitive costs would limit the ability of local governments to buy needed recreation land near metropolitan areas; up to 176,000 public land recreation visits would be immediately displaced and 842,000 recreation visits lost over the long term.



PURPOSE AND NEED 1





CHAPTER 1

PURPOSE AND NEED

This Phoenix Resource Management Plan/Environmental Impact Statement (RMP/EIS) is being prepared to guide the BLM in its management of approximately 911,000 acres of public land in the BLM's Phoenix Resource Area. This RMP/EIS is prepared under the authority of Sections 102 and 202 of the *Federal Land Policy and Management Act* (FLPMA) which requires the Secretary of the Interior to develop land use plans for all public land. This RMP/EIS conforms to the BLM planning regulations, 43 CFR 1600.

The *National Environmental Policy Act* (NEPA) requires all federal agencies to prepare EISs on major federal actions. The RMP is considered a major federal action. Therefore, this RMP is accompanied by an EIS. The EIS documents the environmental impact of implementing the preferred RMP and other alternatives and conforms to the Council on Environmental Quality (CEQ) regulations for implementing NEPA.

This RMP/EIS is focused on resolving six key planning issues associated with the management of the RMP area's public land. These six planning issues were identified during BLM's scoping process. The scoping process was designed to identify the issues and was begun on January 17, 1986 when the BLM published in the *Federal Register* a Notice of Intent (NOI) to prepare an RMP/EIS. Following the issuance of the NOI, the BLM held several public meetings and sent mailouts asking the public to identify issues that should be addressed in the RMP/EIS. See Chapter 5 of this EIS, "Consultation and Coordination," for a detailed description of the scoping process.

This RMP/EIS does not address two key issues identified during the scoping process. These two issues—rangeland management and wilderness—have been covered by the BLM in separate EISs: rangeland management in the *Eastern Arizona Grazing EIS* (1986) and wilderness management in the *Phoenix Wilderness EIS* (1987). Decisions in the *Eastern Arizona Grazing* and *Phoenix Wilderness EISs* have been adopted as management direction for those two issues in this RMP/EIS. Information from these two final EISs is shown in Appendices 2 and 3 for Grazing and Appendix 5 for Wilderness.

This RMP/EIS replaces land use planning decisions in three existing Management Framework Plans (MFPs)—Silverbell, Middle Gila and Black Canyon—which have guided the BLM's management of public land in the RMP area for the past 12

years. The MFP decisions that still have merit are being carried forward and are incorporated into this RMP and those not specifically mentioned in this RMP will no longer be valid.



DESCRIPTION OF THE PLANNING AREA

The Phoenix RMP area is divided into two distinct geographic regions (see Map 1-1). The northern region, Apache and Navajo counties, encompasses about 229,000 acres of scattered public land lying north of the Sitgreaves National Forest and south of the Navajo Indian Reservation.

The southern portion of the RMP area includes 682,000 acres of scattered public land in central and south central Arizona. The land is among private and state holdings and Indian reservations. The southern portion of the planning area has about 75 percent of the state's 2.7 million people and includes the major metropolitan areas of Phoenix and Tucson.

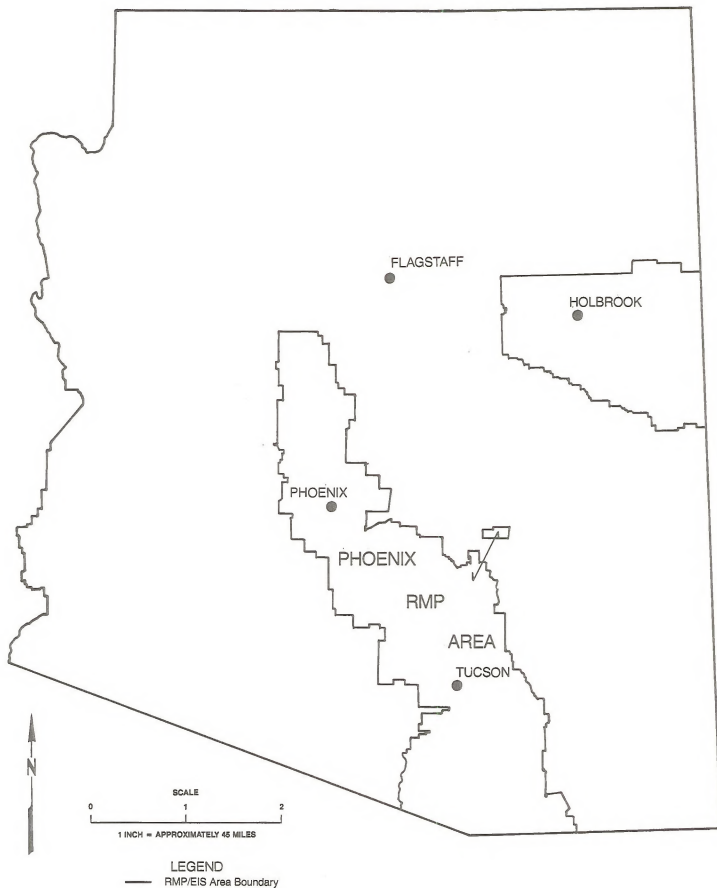
The planning area covers all or parts of eight Arizona counties. Table 1-1 shows a county-by-county public land acreage breakdown.

TABLE 1-1
Public Land Acreage By County
Bureau of Land Management,
Phoenix District, Arizona

County	Public Acres
Apache	133,897
Gila	6,115
Maricopa	77,325
Navajo	94,810
Pima	161,455
Pinal	264,445
Santa Cruz	2,841
Yavapai	170,455
TOTAL	911,343

Source: Phoenix District files.

MAP 1-1
PHOENIX RMP/EIS AREA



The public land pattern in the RMP area includes 20 percent blocked land, 40 percent checkerboard and 40 percent scattered. Population pressures exerted by the major metropolitan areas of Phoenix and Tucson have greatly increased the demands on public land in the RMP area. From an economic standpoint, much of the planning area's public land is high value, approaching one dollar per square foot in some areas.

The RMP area's public land provides valuable public recreation opportunities and exhibits important wildlife, archaeological, wilderness, scenic and recreational values. Often the protection of these important resource values conflicts with development pressures, requiring that difficult choices be made. This RMP, through resolution of the six identified issues, is designed to provide a long-term approach to resolving these conflicts.

PLANNING PROCESS OVERVIEW

The BLM resource management planning process consists of nine steps, described below and graphically illustrated in Figure 1-1.

Step 1: Issue Identification

This planning step is designed to identify major problems, concerns or opportunities associated with the management of public land in the RMP area. Issues are identified by the public, the BLM and other governmental entities. The planning process is focused on resolving the identified planning issues.

Step 2: Planning Criteria

Planning criteria are policies, laws, regulations and guidelines for resolving issues, developing alternatives and choosing a proposed plan.

Step 3: Inventory and Data Collection

This step involves the collection and assembly of certain kinds of biological, physical, social or economic information needed to resolve the planning issues. The inventory information is used in determining how the public land resources will respond to each of the alternatives.

Step 4: Analysis of the Management Situation

The Management Situation Analysis identifies the ways the BLM currently manages the planning

area's public land and identifies opportunities to better manage this public land.

Step 5: Formulation of Alternatives

At this point, the BLM formulates a range of alternatives for managing the resources in the RMP area. The range of alternatives are developed to resolve the significant planning issues and to address specific management concerns in the RMP area. This range of alternatives consists of the preferred plan and its alternatives.

Step 6: Estimation of Effects

This step involves estimating the environmental effects of implementing each of the alternatives. The effects are estimated in order to allow for a comparative evaluation of impacts.

Step 7: Selection of the Preferred Alternative

Based on information generated during Steps 1 through 6, the BLM identifies a preferred alternative. The draft RMP/EIS is then prepared and distributed for public review.

Step 8: Selection of the Resource Management Plan

Based on the results of public review and comment, the BLM will select a proposed resource management plan and publish it with a final EIS. A final decision is made after a 30-day appeal period following the EIS publication.

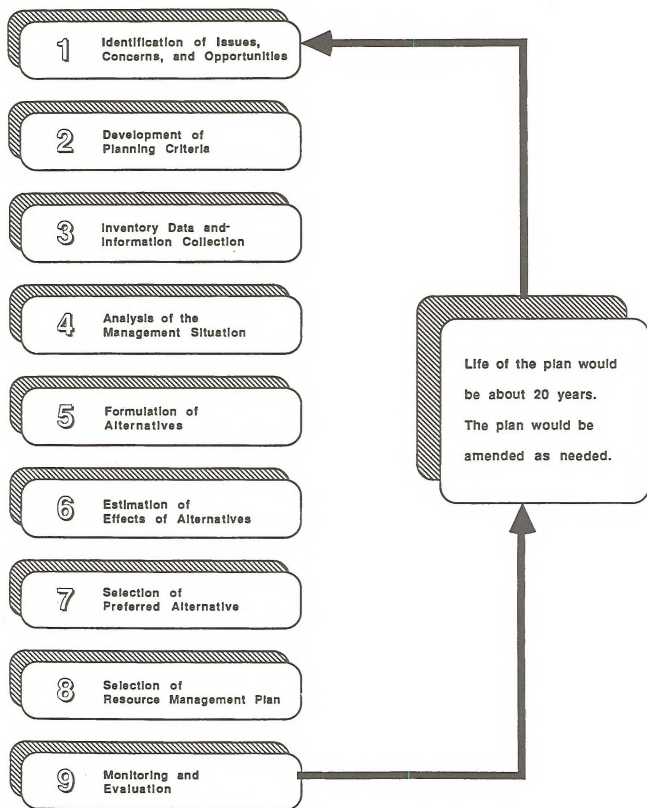
Step 9: Monitoring and Evaluation

This step involves the collection and analysis of long-term resource condition and trend data to determine the effectiveness of the plan in resolving the identified issues and to assure that implementation of the plan is achieving the desired results. Monitoring continues from the time the RMP is adopted until changing conditions require a revision of the whole plan or any portion of it (See Appendix 12).



STEPS IN THE RESOURCE MANAGEMENT PLANNING PROCESS

Figure 1-1



PLANNING ISSUES

Planning issues are those major concerns, problems or opportunities associated with the management of the public land in the RMP area. The issues drive the RMP in that the preferred plan and alternatives are primarily designed to resolve the identified planning issues.

The BLM planning team used the scoping process to identify issues. Through communication media such as public meetings, newsletters and directed mailings, the public was given the opportunity to identify issues that need to be addressed in this RMP/EIS. The BLM planning team then analyzed the public's comments and from this analysis the team identified six major planning issues for resolution in this RMP/EIS. The following describes each issue identified for study.

Issue 1: Land Tenure Adjustment

Land Tenure Adjustment is the major issue needing resolution in this RMP/EIS. Nearly 80 percent of the RMP area's public land is either in checkerboard or scattered ownership. The remainder of the RMP area is in somewhat blocked ownership, but still interspersed with state and private land.

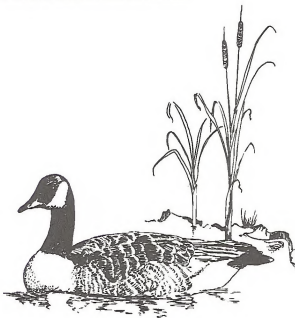
The BLM in Arizona is currently involved in a large-scale state and private exchange program designed to block up land ownerships for more efficient management. Through this RMP/EIS, the BLM will identify a long-range land tenure adjustment program for the RMP area. All public land within the RMP area will be slated for either retention, exchange or sale. Proper resolution of this issue would ideally allow for the continued use of the RMP area's low resource value land as exchange land. Resolution also would identify land with high resource values for retention in BLM-managed resource conservation areas (RCAs). Within these resource conservation areas, public land would be retained and the acquisition of state and private parcels would be pursued.

Issue 2: Utility Corridors and Communication Sites

This RMP/EIS will consider the formal designation of utility corridors and communication sites. Designation of utility corridors would allow for the orderly use of the public land by siting major utility systems along existing routes or in approved corridors. Communication sites would be designated in areas already developed or where such development would cause minimal impact.

Issue 3: Areas of Critical Environmental Concern (ACECs) and Other Areas Requiring Special Management

During the public scoping process, numerous respondents identified a need for protecting the planning area's critical resource values through special designations. The *Federal Land Policy and Management Act* (FLPMA) also requires such consideration. During the public scoping process, the BLM received formal ACEC nominations and the BLM planning team developed its own. For each ACEC nomination, the BLM planning team developed a physical profile detailing the resource values present in each nominated area. From this profile the planning team then determined if the nominated areas contained resource values that were relevant and important enough to warrant designation as an ACEC. Those areas not meeting the ACEC criteria, but still requiring some type of special management, were identified as potential special management areas (SMAs). Specific management measures were then developed to protect and enhance resource values in each ACEC and SMA.



Issue 4: Off-Road Vehicle Designation

BLM policy (43 CFR 8340 and Executive Orders 11644 and 11989) requires that all public land in the RMP area be designated as either open, closed or limited to off-road vehicle (ORV) use. In addition, numerous public comments addressed concern about motorized vehicle use on public land. For these reasons ORV designations were made an issue to be addressed in this RMP/EIS.

Issue 5: Recreation Management

Recreation management was identified by the public as an issue to be addressed in this RMP. The primary focus of the public concern was the need for BLM to provide land for open space recreation opportunities. Such recreation opportunities were identified as being most important near large metropolitan areas such as Phoenix and Tucson. In addition, several state and local government agencies made requests for public land with the intended use of developing the land for public purposes such as parks.

To guide future management of the RMP area's recreation resources, this RMP will identify (1) large blocks of public land where one of the primary uses will be open space recreation; (2) land that can be managed cooperatively with state and local governments for recreation purposes, and (3) measures whereby BLM can enhance recreation opportunities on the identified land.

Issue 6: Land Classifications

The *Federal Land Policy and Management Act* (FLPMA) requires the BLM to review existing multiple use classifications (C&MU) to determine if they are still needed for their intended purposes. Within the RMP area are numerous BLM classifications that may no longer be useful and may hinder current BLM programs.

FLPMA calls for a review of all existing classifications in the land use planning process. FLPMA states that "the Secretary of the Interior may modify or terminate any such classification consistent with such land use plans" (FLPMA Sec. 202(d)). Consistent with FLPMA, this RMP will address classifications as an issue. All existing land classifications will be identified and those no longer useful for their intended purpose will be terminated.

ENVIRONMENTAL ISSUES

Information received from the public during the issue identification phase of this EIS was utilized by the BLM planning team to identify significant "environmental issues" that would be addressed in this RMP/EIS. An environmental issue is a value that is expected to be significantly impacted by one or more of the alternatives chosen for study in this RMP/EIS. Consistent with CEQ regulations, this RMP/EIS discusses impacts to only those environmental issues that would be significantly impacted. The environmental issue identification process eliminates from detailed study the environmental issues

which would not be significantly affected by the alternatives selected for study. The following environmental issues were identified as significant:

1. Effects on Land Uses

Land Ownership. Land exchanges would result in rearranging public land into consolidated blocks. Land exchanges are made on a value-for-value rather than acre-for-acre basis; thus, exchanges may alter the mix of federal, state and private land in the RMP area. For these reasons land ownership changes are an issue to be analyzed in this EIS.

Land Available for Recreation and Other Public Purposes. During the public scoping process several local governments expressed concern about the availability of federal land for public needs. Under two alternatives, some tracts are identified for disposal to local governments under the *Recreation and Public Purposes Act* (R&PPA) while other areas are identified for development as Cooperative Recreation Management Areas. Two other alternatives would not identify any land for transfer under the *Recreation and Public Purposes Act* (R&PPA). Because of local concerns about land for recreation and public purposes, the effect of this RMP on public recreation land is an issue that will be addressed in this EIS.

Right-of-Way Development. Proposed land exchanges or sales would cause changes in the way new rights-of-way are established. On public land slated for disposal, right-of-way applicants would be required to deal with private or state owners to acquire rights-of-way. Also, RMP decisions to protect environmentally sensitive areas from surface disturbing activities could impact right-of-way development. For these reasons the effect of the RMP on right-of-way development is an issue to be addressed in this EIS.

Payments in Lieu of Taxes (PILT). The disposal of public land under some alternatives would affect the "in-lieu" tax payments made annually by the federal government to counties. During the public scoping meetings the potential loss of these PILT payments was identified as a concern. Therefore, changes in PILT payments to counties is an issue and will be addressed in this EIS.

2. Effects on Locatable Mineral Development

Retaining and blocking up federal land would benefit mineral development as mineral developers would only have to deal with one set of rules and

regulations to develop a property. In addition, mining on federal land under the 1872 mining law is generally less costly than is such mining on state or private land. Large blocks of federal land would also benefit the small miner as these blocks would generally be available for prospecting activities at little cost to the prospector.

Disposing of federal land to private interests or the State of Arizona would complicate and, in some cases, eliminate prospecting on land where the 1872 mining laws have encouraged mineral exploration and production. Mining on state or private land is generally less profitable than is such mining on public land because of fees imposed by state or private landowners.

Because locatable mineral exploration and development is expected to be impacted by the alternatives, locatable mineral exploration and development will be addressed as an issue in this EIS.

3. Effects on Watershed Condition

Many of the soil, water and air resource issues are interrelated and can be collectively addressed through a discussion of watershed conditions. The RMP area allotments have been placed in a watershed category ranging from a Category I (best condition) to a Category IV (worst condition). The preferred RMP and its alternatives are expected to affect existing watershed conditions on some allotments. Therefore, changes in watershed conditions is an issue to be addressed in this EIS.

4. Effects on Rangeland Management

Ranch Operations. Land disposals proposed under three alternatives would impact ranch operations in the RMP area because some RMP area ranchers rely on the public land for most of their grazing. Exchange of public land with the State of Arizona would, in most cases, have an insignificant impact on ranch operations. Since the alternatives are expected to impact some ranch operations, the effect on ranch operations is an issue to be analyzed in the EIS.

Effects on Ranch Values. Disposal of public land to private interests may affect ranches by diminishing the amount of grazing land leased from the BLM, thereby decreasing a ranch's carrying capacity. Since ranches are generally valued on the basis of carrying capacity on private and leased land, it is likely that reducing the amount of BLM land available for lease would affect ranch values. Therefore, the effect of the RMP on ranch values is an issue to be addressed in this EIS.

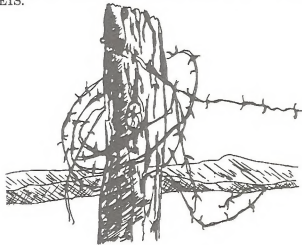
5. Effects on Areas of Cultural Significance

The RMP area contains some of the most important cultural resources in the State of Arizona. The alternatives could significantly affect *National Register* and *National Register* quality properties in 10 significant cultural areas. Therefore, the effect of the alternatives on cultural properties in 10 culturally sensitive areas is an issue to be analyzed in this EIS.

6. Effects on Vegetation

Ecological condition is expressed in terms of excellent, good, fair or poor and reflects current vegetative composition compared to the composition of the potential vegetative community for a given ecological site. Trend is the direction of change of the existing vegetative community compared to the potential community (See *Eastern Arizona Grazing EIS*, Phoenix District 1985).

The preferred RMP and its alternatives are expected to affect existing ecological condition and trend on several allotments slated for special management. Therefore, vegetation changes on these allotments constitutes an issue to be analyzed in this EIS.



7. Effects on Riparian Habitat

Two alternatives would significantly benefit riparian habitat by designating key riparian areas as ACECs and special management areas. Activity plans in these areas would be designed to reduce or eliminate riparian conflicts. Other benefits for riparian habitat would be land acquisitions, ORV designations, restrictions on placement of utility corridors and stipulations affecting oil and gas lease development. The BLM has received numerous public comments regarding the protection of riparian areas. Therefore, effects on riparian habitat will be an issue to be addressed in the EIS.

8. Effects on Special Status Plants

A complete list of plant species considered for analysis in this RMP/EIS is found in Appendices 9 and 10. Because the species discussed in this section may be significantly affected by proposals under one or more of the alternatives, they will be analyzed in this RMP/EIS.

Federally Listed Plant Species: Tumamoc Globeberry, Peebles Navajo Cactus and Nichol Turk's Head Cactus. Land retention and acquisition proposals in two alternatives would substantially change the amount of protected plant habitat brought under federal control. Another alternative would dispose of all the current BLM habitat. ACEC proposals in two alternatives identify protection measures for the federally endangered Peebles Navajo cactus and Nichol Turk's head cactus.

Federal Candidate Species: Sword Milkvetch, Paperspined Cactus and Thornber Fishhook Cactus. The potential for negative impacts under three alternatives (because of land disposal plans) and the positive impacts of retaining the habitat under the other alternative are sufficient to consider the effects on sword milkvetch, paperspined cactus and Thornber fishhook cactus as issues to be analyzed in this EIS.

9. Effects on Wildlife

The following wildlife species have significance for management on public land in the RMP area and because these species may be significantly affected by one or more of the alternatives, they will be analyzed as issues in this RMP/EIS. Appendix 8 contains species status and distribution information for all species considered for analysis.

Gila Topminnow. Special management areas under two alternatives would benefit the endangered Gila topminnow through ORV, utility corridor and oil and gas surface leasing restrictions. Elsewhere, topminnow reintroductions would aid in the recovery of the species. One alternative would impact the Tule Creek topminnow population by the loss of legal protection and management under the *Endangered Species Act* and possibly result in the loss of the population.

Desert Pupfish. Two alternatives would benefit the endangered desert pupfish through continued management under an existing Habitat Management Plan (HMP). Under these alternatives, the BLM would maintain and monitor the existing population

at Mesquite Springs. Future introductions into additional sites would be a possibility. One alternative would eliminate federal management of an existing population and cause the loss of legal protection for the population under the *Endangered Species Act*.

Little Colorado River Spinedace. Alternatives B, C and D land disposals would impact the Little Colorado spinedace, a species proposed for listing as threatened. *Alternative A* would benefit the spinedace habitat since it would be retained in federal ownership. Therefore, the effect of the RMP on the Little Colorado River spinedace is an issue to be addressed in this RMP.

Desert Bighorn Sheep. Two alternatives would significantly benefit the desert bighorn sheep by acquiring land in crucial habitat and by providing special management measures for that habitat. Another alternative would negatively impact desert bighorn sheep since under that alternative, crucial public land habitat would not be retained in federal ownership. These actions are expected to affect desert bighorn sheep populations; therefore, desert bighorn sheep habitat will be an issue to be addressed in the EIS.



Desert Tortoise. *Alternative B* would benefit the desert tortoise through the establishment of a special management area, retention of large blocks of public land, ORV designations, utility corridor restrictions, oil and gas leasing restrictions and the updating of three existing HMPs. Under other alternatives, the Picacho Mountains would be managed cooperatively with Arizona State Parks or the land would not be retained in federal ownership. These actions are expected to affect tortoise populations; therefore, desert tortoise are an issue to be addressed in this RMP.

Medium to High Density Mule Deer Populations. Public land in the RMP area provides 16 percent of the total RMP area land supporting medium to high mule deer densities. Two alternatives would benefit mule deer through land retention and acquisition and updated HMPs with an objective to maintain and improve medium to high density habitat. *Alternative D* would negatively impact mule deer because public land habitat would no longer be retained. For these reasons, the effect of the RMP on medium to high density mule deer habitat is an issue that will be addressed.

Pronghorn. Two alternatives would benefit pronghorn populations in eastern Yavapai County by establishing a special management area, acquiring land and implementing provisions to benefit pronghorn. The two other alternatives would negatively impact the pronghorn because the land would not be managed with an emphasis on the retention, protection and improvement of pronghorn habitat.

Land disposals under the preferred plan and its alternatives would impact pronghorn in Navajo and Apache counties by disposing of public land which would result in increased remote subdivision development and subsequent loss of habitat. For these reasons, the effect of the RMP on the Yavapai County and Apache-Navajo pronghorn populations is an issue to be addressed.

Medium to High Density Javelina Populations. Public land in the RMP area provides 19 percent of the total land supporting medium to high densities of javelina. Two alternatives would benefit javelina through land retention and acquisition and updated HMPs with an objective to maintain and improve medium to high density habitat. Another alternative would result in no HMP and no habitat management. Therefore, the RMP's affect on javelina is an issue to be addressed.

10. Effects on Wild, Free-Roaming Burros

Two alternatives would benefit burros by retaining and acquiring public land necessary for maintaining the Lake Pleasant burro herd. Designation of a special management area for burros as proposed under two alternatives would reduce the problems encountered when burros trespass on state and private land. One alternative would remove the herd from historic habitat and another would eliminate intensive management and protection, probably diminishing burro numbers over time. Because the alternatives could affect the Lake Pleasant burro herd, the issue of impacts to the herd is to be addressed in the RMP/EIS.

11. Effects on Recreation Use

Actions proposed under two alternatives would affect recreation use and opportunities by (1) maintaining and acquiring public land for unstructured and dispersed recreation activities, (2) establishing cooperative recreation management areas, (3) transferring land for recreation use under the R&PPA, (4) designating two special management areas and two ACECs, (5) continuing public use of the majority of roads and trails, (6) protecting outstanding scenic values and (7) managing specific areas for structured recreational opportunities. One alternative would dispose of public land currently used for unstructured and dispersed recreation and eliminate the possibility of developing cooperative management areas. The BLM has received numerous public comments about recreational use of public land. This, coupled with the fact that the alternatives would impact public recreation opportunities, makes recreation use an issue to be addressed in this EIS.



Black Grama

ENVIRONMENTAL ISSUES CONSIDERED BUT NOT ANALYZED

The following concerns were identified in scoping, but were not selected as significant issues to be analyzed in the EIS. The reasons for identifying the issues as insignificant are discussed below.

1. Effects on Water Quality

Water quality standards have been established for specific streams or their tributaries by the State of Arizona under the authority of the *Federal Water Pollution Control Act*, or FWPCA, (PL 92-500). Salinity control, as required by Section 203 (b)(3) of the Colorado River Basin *Salinity Control Act Amendments of 1984* (PL 98-569), has been incorporated into the RMP analysis of watershed condition.

Generally, the BLM deals with nonpoint sources of pollution, which are addressed in Section 208 of the FWPCA. Water quality problems identified by the various agencies responsible for Section 208 planning are discussed in the RMP management situation analysis.

The degree of water quality enhancement or any change could not be assessed until site-specific activity plans were prepared and the appropriate amount of monitoring completed.

In summary, the lack of baseline and pollution source data precludes a reasonably accurate prediction of the impacts resulting from any of the alternatives. Therefore, further description of impacts to water quality will be indirectly assessed under the watershed conditions issue.

2. Effects on Air Quality

Standards used for air quality are the National Ambient Air Quality Standards (NAAQSs) as defined in the *Clean Air Act*. If implementing any of the proposed alternatives would result in nonattainment of NAAQSs, or attainment of a particular standard in a current nonattainment area, then air quality would be significantly impacted.

Fugitive dust emission, the main source of air pollution from public land, is naturally generated by the erosive force of winds blowing across desert areas; it is aggravated by removal of organic soil cover and disturbance of nonorganic crusts and desert pavements. Specific actions discussed in the alternatives that would affect fugitive dust emissions include reducing surface disturbance by limiting ORV use and increasing soil cover through watershed improvements.

In rural areas, these actions would not affect the attainment of NAAQSs as fugitive dust is excluded from the evaluation of air quality. Likewise, the control of off-road vehicles or the establishment of watershed improvement projects could not reasonably be expected to cause attainment of particulate standards in current nonattainment areas.

Because none of the alternatives would cause attainment or nonattainment of NAAQSs, air quality would not be significantly impacted by the RMP and is not an issue to be addressed in this EIS.

3. Effects on Cultural Resources Outside Areas of Significance

Cultural resources outside the 10 high quality cultural resource sensitive areas (see Environmental Issues Section) would not be significantly impacted by proposals under any alternative. Properties in these areas are protected under provisions of 36 CFR 800, General Compliance Programmatic Memorandum of Agreement, and a State Exchange Memorandum of Agreement. Therefore, impacts to cultural resources outside the 10 identified cultural resource areas will not be addressed in this EIS.

4. Effects on Other Wildlife Species

None of the following wildlife species will be significantly impacted by implementation of any of the alternatives. Therefore, these species will not be considered as issues to be addressed in the RMP. Appendix 8 lists all of the species considered for analysis.

Bald Eagle. Public land provides only limited foraging habitat along the Agua Fria and Gila rivers and Picacho Reservoir. BLM acquisition of a nest site at the upper end of Lake Pleasant would not significantly change the current management of bald eagle habitat at Lake Pleasant.

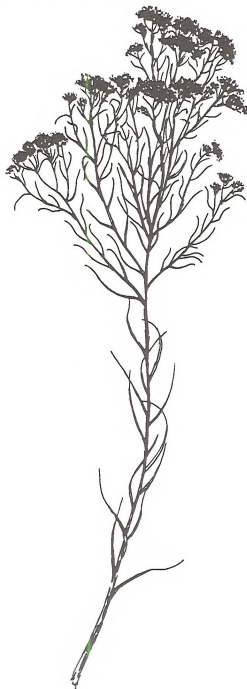
Peregrine Falcon. Public land provides limited foraging habitat for migrating peregrine falcons. Occupied habitat on public land has not been verified.

Yuma Clapper Rail. The 350 acres of public land at Picacho Reservoir comprises only a small percentage of the total distribution of the Yuma clapper rail. Rails have been observed at Picacho Reservoir, but there has been no documentation of breeding birds.

Masked Bobwhite. Public land in the RMP area is not inhabited by the masked bobwhite. About 600

acres of public land lie adjacent to the eastern boundary of the Buenos Aires National Wildlife Refuge and provide medium potential bobwhite habitat.

Woundfin. The woundfin does not inhabit public land within the RMP area. The USFWS and AG&FD plan to introduce a nonessential experimental population of woundfin into the Hassayampa River. The introduction is not considered an attempt to prevent further decline of the species.



Black-Footed Ferret. Public land in Apache and Navajo counties is within the range of the black-footed ferret. An inventory conducted by the BLM and AG&FD has not identified any occupied areas or areas considered to be potential habitat (i.e., the presence of large prairie dog town complexes).

Federal Candidate and State-Listed Wildlife Species:

Colorado River roundtail chub
Gila chub
Common black hawk
Ferruginous hawk
Swainson's hawk
Mississippi kite
Osprey
Snowy egret
Great egret
Black-crowned night heron
Long-Billed curlew
Arizona giant sand-treader cricket
Underwood mastiff bat
Spotted bat
Greater mastiff bat
Little long-nosed bat
Silky pocket mouse
Gila monster
Gilbert's skink
Mountain skink

For the above species, public land in the RMP area either provides a small portion of the total habitat, provides habitat used only on an occasional basis or provides widely distributed habitat interspersed with private, state and other land. Therefore, this RMP will little affect the above species.

Small Game: Quail and Doves. Public land provides a comparatively small percentage of the total habitat for Montezuma and scaled quail in the southern portion of the RMP area. Gambel's quail and mourning and white-winged dove inhabit public, state and private land throughout the entire RMP area and public land is not considered crucial to maintaining the populations. Implementation of the RMP would not significantly impact quail or dove populations. Therefore, impacts to quail and dove will not be an issue to be addressed in the EIS.

White-Tailed Deer. Public land provides three percent of the total white-tailed deer habitat in AGFD-designated wildlife management units 36A, 36B and 36C. Impacts to white-tailed deer resulting from implementation of any of the RMP's alternatives are not considered significant because of the small percentage of habitat on public land. Therefore, impacts to white-tailed deer will not be an issue to be addressed in the EIS.

5. Effects on Additional Plant Species

A list of plant species considered for analysis is found in Appendices 9 and 10. Listed species which met specific criteria based on anticipated impacts generated by one or more alternatives were carried forward for discussion as environmental issues. All federally listed species were carried forward as issues. Federal candidate species or plants on the Arizona Natural Heritage Program list were carried forward as issues if actions or impacts generated by one or more alternatives might cause a population change which would either contribute to the need for listing the species or prevent the need for listing.

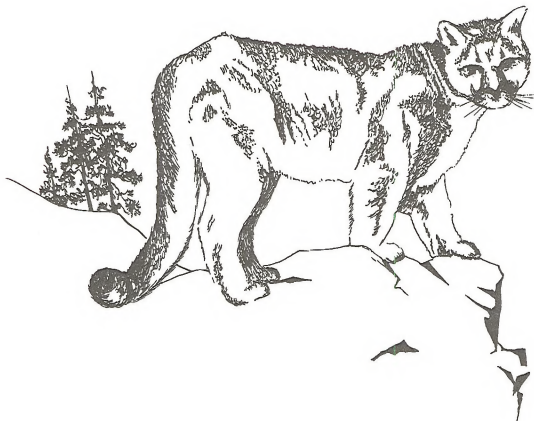
Only those species discussed in the environmental issue section of this chapter were found to meet these criteria.

6. Effects on Saleable and Leasable Mineral Development

Under three of the alternatives, some land having the potential for saleable or leasable mineral development has been identified for disposal. Proposed

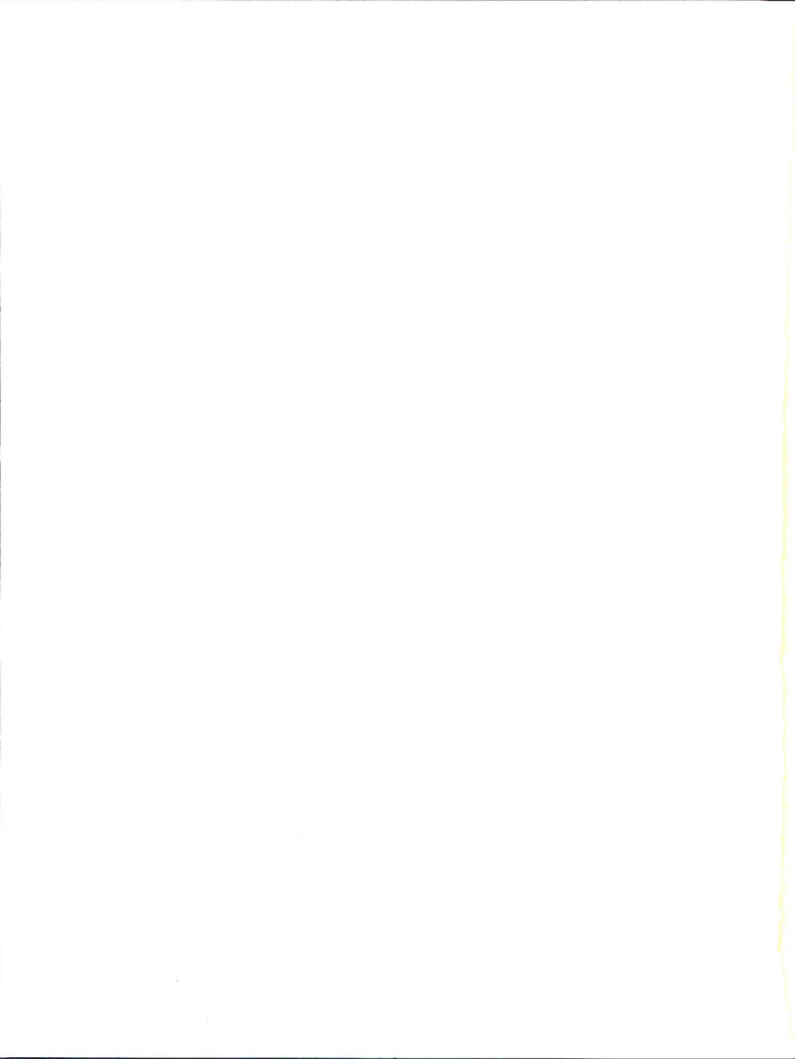
acquisition of land of similar value and potential would probably offset this loss. Furthermore, development of saleable and leasable minerals on disposed land should not suffer since the economic framework within which saleable and leasable minerals currently are marketed should not change significantly under private ownership. Possible revenue loss from sales and leasing by the federal government under three of the alternatives should be somewhat offset by the decrease in administrative costs once land is consolidated. Furthermore, material sales and leasing is expected to continue on most land that is retained and acquired.

For these reasons the effect of the alternatives on saleable and leasable mineral development is expected to be insignificant and therefore, saleable and leasable mineral development is not an issue to be addressed in this EIS.



ALTERNATIVES 2





CHAPTER 2

DESCRIPTION OF ALTERNATIVES

INTRODUCTION

Four land use plan alternatives, including the preferred Resource Management Plan, are described in this chapter. Each alternative represents a complete plan to guide future management of the public land in the Phoenix RMP area. This chapter contains a detailed description of each of the alternatives chosen for study and also includes a section identifying management guidance that is common to all alternatives. This guidance is based on the laws, regulations and policies to which the BLM is required to adhere regardless of the RMP alternative chosen for implementation.

Guidance for the wilderness and grazing programs is provided by findings in the *Phoenix Wilderness and Eastern Arizona Grazing EISs* completed independently of this plan. This guidance is incorporated into this RMP/EIS by reference.

MANAGEMENT GUIDANCE COMMON TO ALL ALTERNATIVES

While it is impractical to relate the full extent of existing and continuing management guidelines, those which apply significantly to programs receiving substantial public interest will be summarized in the following section. Additional management guidance can be found in the Phoenix Management Situation Analysis (MSA) (BLM 1986) prepared during the early stages of this planning effort. The MSA also contains the RMP area's inventory results and a capability analysis section. The MSA is available for review at the Phoenix District Office and is incorporated here by reference.

LAND USE MANAGEMENT GUIDANCE

Land Tenure Adjustment. All land identified as suitable for disposal by sale in this RMP meets the criteria set forth in Sec. 203 (a)(1) of the *Federal Land Policy and Management Act* (FLPMA) of 1976 which states that "... such tract because of its location or other characteristics is difficult and uneconomical to manage as part of the public land and is not suitable for management by another federal department or agency."

All land will be disposed of at fair market value, excluding land disposed of to local governments

under the *Recreation and Public Purpose Act* (R&PPA). All disposals will be subject to valid existing rights.

The BLM's ability to dispose of land identified for sale or exchange in this RMP/EIS may be constrained by the existence of withdrawals. Not all withdrawals preclude the disposal of the withdrawn land, but in most cases, the BLM will not dispose of withdrawn land until the withdrawal designation has been lifted. FLPMA Sec. 204 (k)(1) requires that all withdrawals affecting public land be administratively reviewed by 1991. Land that becomes unencumbered through the withdrawal review process will then come under the guidance of decisions made in this RMP/EIS.

Currently, it is BLM policy not to dispose of public land encumbered with properly recorded unpatented mining claims. However, disposal actions under sections 203 and 206 of FLPMA and the Act of June 14, 1926, as amended, may occur if: (1) the mining claims are found to be void due to failure by the claimant to comply with Sec. 314 of FLPMA, 43 USC 1744 (1982) and 43 CFR 3833.2-1, (2) the mining claimant relinquishes the mining claims to the United States, (3) the mining claim is contested and found to be invalid or (4) a change in current policy allows for the disposal of public land encumbered with mining claims.

In addition, any land identified for disposal will be evaluated for significant cultural resources, threatened and endangered plants and animals, flood-plain/flood hazards and prime and unique farmland before actual transfer of the land is completed.

Communication Sites. Communication site applications will continue to be considered on land disposed of until such time as disposal takes place. On land retained or acquired, communication facility development will be limited to designated sites. Communication site plans will be developed on all designated sites.

Land Use Authorizations. Land use authorizations (rights-of-way, leases, permits, easements) will continue to be issued on a case-by-case basis and in accordance with decisions established in this RMP/EIS.

Rights-of-way will be issued to promote the maximum utilization of existing right-of-way routes, including joint use whenever possible.

Utility Corridors. All major utility systems are required to route their systems through the designated corridors under alternatives B and C. This will prevent the proliferation of major utility systems

across public land and will reduce adverse environmental impacts to sensitive resources.

Recreation and Public Purposes Act (R&PPA). Under the R&PP Act, the BLM has the authority to lease or patent public land to governmental or nonprofit entities for public parks, building sites, correction centers or for other public purposes. R&PPA leases and patents will be issued in accordance with the decisions set forth in this RMP and will be processed under the requirements of NEPA.

To ensure public purpose development of public land slated for R&PPA transfer, the BLM may require that land be first leased for a period of time prior to issuing a patent.

Public Land Withdrawals and Classifications. Current pending litigations have enjoined the BLM from terminating or modifying withdrawals and classifications under Sec. 204 (l) and 204 (d) of FLPMA. The BLM has been congressionally mandated to complete all Sec. 204 (l) withdrawal reviews by 1991.

In general, all actions proposed in this RMP not prohibited by specific terms of a withdrawal or classification will be carried out. Actions prohibited by the specific terms of the withdrawal or classification will remain in effect until such withdrawals are revoked or classifications terminated.

MINERALS MANAGEMENT

Mineral exploration and development is generally encouraged on public land in keeping with the Bureau's multiple resource concept. Overall guidance on the management of mineral resources appears in the *Mining and Minerals Policy Act of 1970*, Sec. 102 (a)(12) of FLPMA, *National Materials and Minerals Policy, Research and Development Act of 1980* and the BLM's *Mineral Resources Policy of May 29, 1984*.

Locatable Minerals. Exploration for and development of locatable minerals are provided for under the regulations 43 CFR 3802 and 3809. These provide for mineral activities in conjunction with other resource development. They are designed to prevent unnecessary and undue degradation and to limit the impacts of mining while deriving their maximum benefit. Mining activity within the planning area will be administered on a case-by-case basis.

Saleable Minerals. Sales of mineral materials to the public will be administered on a case-by-case basis. Generally, saleable minerals are sold at market prices. Free use permits will continue to be issued to the state and local communities as the need arises.

Leasable Minerals. 43 CFR 3100 to 3500 provides the regulatory framework for the issuance of mineral leases. These regulations apply where public interest exist for the development of oil, gas, sodium, potassium and geothermal resources. Where required, stipulations will be attached to leases to mitigate impacts to sensitive species, cultural areas and other resources susceptible to impacts related to leasing activities.

RANGELAND MANAGEMENT

The grazing program in the RMP area is managed under provisions of the *Taylor Grazing Act of 1934*, the *Federal Land Policy and Management Act (FLPMA)* of 1976 and the *Public Rangelands Improvement Act of 1978*. These acts provide authorization for the issuing of grazing leases, unauthorized use detection and abatement, use supervision, livestock grazing management, range improvement facilities and treatments and other actions.

Management of rangeland resources in the RMP area will be guided by the recently completed *Eastern Arizona Grazing EIS* (BLM, Phoenix and Safford Districts, Arizona 1986) and the forthcoming Range Program Summary (BLM 1987).

The Grazing EIS responds to requirements of the *National Environmental Policy Act of 1969* and FLPMA and covers all land within the RMP area. This EIS provides guidance for the RMP area grazing management program with the following objectives: (1) to restore and improve rangeland condition and productivity, (2) to provide for use and development of rangeland, (3) to maintain and improve habitat and viable wildlife populations, (4) to control future management actions and (5) to promote sustained yield and multiple use.

All grazing allotments in the district have been assigned to one of three management categories on the basis of present resource condition and management needs, range potential, conflicts with other resource values and economic potential for improvement. See Appendix 2 for allotment categorizations.

Categorization establishes priorities for distributing rangeland management funds in order to achieve cost-effective improvement of rangeland conditions and production. The three categories are: "M"—Maintain, "I"—Improve and "C"—Custodial. The "M" category allotments are managed to maintain satisfactory conditions, "I" allotments are managed to improve unsatisfactory conditions and "C" allotments receive custodial management to prevent resource deterioration. Efforts are concentrated in allotments where monitoring and evaluation indicate that grazing management actions are needed to

improve the basic resource or to resolve serious resource-use conflicts. The BLM recategorizes allotments as management needs or objectives shift or potential for improvement changes.

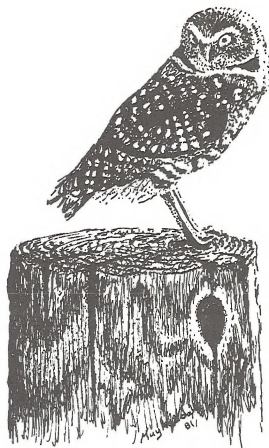
The *Eastern Arizona Grazing EIS* also identifies information about current ecological condition and apparent trend for all RMP area allotments. The EIS also contains the current carrying capacity, in animal unit months (AUMs) and the expected AUM capabilities of each allotment as the EIS range program is implemented. This information is shown in Appendix 3.

WILDERNESS MANAGEMENT

The *Phoenix Wilderness EIS* (BLM, Phoenix District, 1987) recommendations are incorporated by reference in this RMP/EIS (Appendix 5). Two wilderness study areas, the Baboquivari Peak WSA and the Coyote Mountains WSA, are recommended for wilderness designation. Hells Canyon WSA, White Canyon WSA and Picacho Mountains WSA are not recommended as suitable. The South Bradshaws and Ragged Top WSAs currently are being evaluated for wilderness suitability in the *Arizona-Mohave EIS* (BLM 1987). All WSAs in the RMP area will continue to be managed under the BLM's *Interim Management Policy* until Congress either releases them from review or designates them as wilderness. Those released will be managed according to decisions in the final Phoenix RMP. Those added to the wilderness system will be managed under provisions of the designating legislation.

WILDLIFE AND SPECIAL STATUS PLANT RESOURCE MANAGEMENT

Wildlife and wildlife habitat on public land in Arizona are managed under a memorandum of understanding with the Arizona Game and Fish Department. State-protected plants are managed in cooperation with the Arizona Commission of Agriculture and Horticulture. Wildlife and plants which are federally listed or proposed for listing as either threatened or endangered are protected under provisions of the *Endangered Species Act of 1973*, as amended. Any actions authorized, funded or carried out by a federal agency which may affect listed or proposed species are reviewed in cooperation with the U.S. Fish and Wildlife Service. It is BLM policy to avoid jeopardizing the continued existence of any listed or proposed species and to actively promote species recovery. It is also BLM policy to manage federal candidate species and their habitat to prevent the need for listing as threatened or endangered.



Potential impacts to wildlife and special status plants are analyzed in an environmental assessment for each project and protection measures may be stipulated in the record of decision.

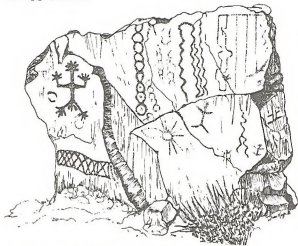
WILD, FREE-ROAMING BURROS

Public Law 92-195, December 15, 1971 (16 USC 1331-1340, as amended), made the BLM responsible for the welfare and protection of unbranded and unclaimed burros found on public land at the time of the act's passage. The management of burros on public land requires their removal from adjacent private or state land when requested, the development of a herd management area plan, the maintenance of a herd inventory and the removal and disposal of excess animals to the public by adoption, if possible. The management of burros on public land is accomplished at the minimum level necessary to assure the herd's free-roaming character, health and self-sustaining ability.

CULTURAL RESOURCE MANAGEMENT

Cultural resources on public land are protected under an array of laws and regulations. Two of the most important laws are the *National Historic Preservation Act* (NHPA) of 1966 and the *Archaeological Resources Protection Act* (ARPA) of 1979. Under NHPA, potential impacts to *National Register* and *National Register-eligible* properties are identified and measures to mitigate those impacts are developed in consultation with the Arizona State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation. ARPA prohibits the excavation, removal or damage of archaeological resources from public land by unauthorized persons. Since 1985, the BLM in Arizona also has operated under terms of a general compliance Programmatic Memorandum of Agreement with the state, which guides inventory and data recovery procedures for sites on all public land, and a specific Memorandum of Agreement addressing the protection of cultural resources in BLM-state land exchanges (memoranda on file in the Phoenix District Office).

The objective of cultural resource management in the RMP area is to protect the information potential or the public use values of properties or to manage them, when applicable, for conservation. The guidelines for management under each objective are found in Appendix 6.



SOIL, WATER AND AIR RESOURCES

Soil Resources. The maintenance and improvement of soil cover and productivity is accomplished through preventive measures and land treatments. Preventive measures are usually brought forward in project planning and NEPA review. Preventive measures typically include the avoidance of erosion-prone areas, restrictions on type and season of use and closure to certain uses. Land treatments are identified where excessively eroded rangeland can be stabilized.

Salinity control measures are incorporated into these erosion prevention strategies and rehabilitation treatments. Land treatments include implementing proper grazing systems, reseeding grasses and forbs to reestablish ground cover, contour furrowing, imprinting, prescribed fire and constructing water control structures.

Water Resources. Legal availability of water is provided by assertion of public water reserve doctrine and compliance with state water law. Maintenance or enhancement of streamflow will be achieved pursuant to developed activity plans for special management areas. Physical developments or improvements are made subsequent to legal ownership.

Floodplain Management. *Executive Order 11988* directs federal agencies to "avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development whenever there is a practicable alternative" (*Floodplain Management Guidelines*, 43 CFR 6030, 1978). It is Bureau policy to retain base (100-year) floodplains except:

Where federal, state, public and private institutions and parties have demonstrated the ability to maintain, restore and protect the floodplain on a continuous basis.

Where transfer of land, minerals or subsurface estates is mandated by legislation or Presidential Order.

Existing district procedures meet the requirements of this policy. District procedures may also require additional mitigation identified in environmental assessments prepared for specific projects or actions.

Water Quality. The BLM objective for water quality is to ensure that all waters on public land meet or exceed federal and state water quality standards. Generally, the BLM deals with nonpoint sources of pollution, which are addressed in Section 208 of the *Federal Water Pollution Control Act Amendments of 1972* (PL-92-500). The EPA has designated various agencies within the state as having the responsibility for Section 208 planning. These agencies assess nonpoint sources of pollution and prepare water quality management plans. The Arizona Department of Environmental Quality reports water quality status to the EPA annually.

Impacts to water quality are prevented or reduced through the application of specific mitigative measures identified in project planning and NEPA review. Where feasible, watershed improvement projects are implemented to increase ground cover and

ultimately reduce erosion, sediment yield and salinity contributions from public land.

Air Quality. Impacts to air quality resulting from activities on public land are prevented or reduced through mitigations brought forward in NEPA review of proposed projects. Typically, activities on public land which might affect air quality are addressed by Article 4 (R9-3) of the *Arizona Rules and Regulations*. Prescribed burning, road construction, permitting the construction of mineral tailings piles and allowing dust emissions from passing vehicles in vacant lots are all specifically addressed in the regulations. The BLM permit and NEPA review processes are designed to ensure compliance with these regulations. For identification and coordination purposes, the BLM refers to the State Implementation Plan goals for air quality nonattainment areas.

HAZARDOUS MATERIALS (HAZMAT) MANAGEMENT

The three laws most commonly associated with HAZMAT include the *Resource Conservation and Recovery Act*, or RCRA (PL 94-580), the *Comprehensive Environmental Response, Compensation and Liability Act*, or CERCLA (PL 96-510), otherwise known as the *Superfund Act*, and the *Superfund Amendment Reauthorization Act* (E.O. 12580, 1986). BLM responsibilities under these acts include conformance with state RCRA enforcement regulations pertaining to the storage, handling and disposal of hazardous materials and reporting unpermitted HAZMAT discharges under the provisions of CERCLA.

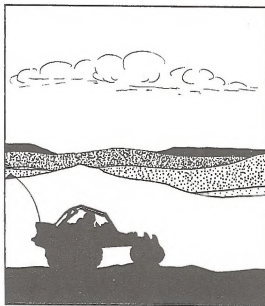
FIRE MANAGEMENT

Current fire management policy for the RMP area is to maintain full suppression in all areas. Full suppression is defined as taking sustained and appropriate action necessary to promptly suppress wildfires. A fire overhead team, hand crews, aerial fire retardant, crawler tractors, fire engines and other specialized equipment may be utilized in the control effort. Preference is given to suppression methods that are cost-effective, efficient and are least damaging to resources and the environment.

If fires escape initial attack, an Escaped Fire Situation Analysis (EFSA) will be prepared to determine the most appropriate suppression strategy based on safety, cost efficiency and effectiveness of fire suppression resources.

A close coordination with other fire organizations with suppression responsibilities will continue for

areas adjacent to public land in the RMP area. Following the completion of this RMP, special management area activity plans will identify areas where prescribed burning would benefit wildlife, watershed and rangeland resources.



RECREATION MANAGEMENT

Management prescriptions required to manage cooperative recreation management areas (CRMAs) will be jointly developed in master plans between the BLM and the cooperating agency. Management prescriptions that will be addressed in the master plan include ORV travel, signing requirements, recreation facilities, fee collections and visitor use allocations. Until such time as the master plans are developed for each CRMA, the BLM will manage the areas under the guidance provided in this RMP.

ENVIRONMENTAL MANAGEMENT

The BLM will prepare a site-specific environmental analysis before projects proposed in this RMP/EIS are implemented. The environmental analysis will provide a site-specific assessment of the impacts of implementing projects proposed in this RMP/EIS. In addition, the BLM will conduct wildlife, protected plant and cultural resource clearances as a part of the environmental analysis process. The analysis will also identify mitigation necessary to reduce the impacts of implementing a proposed project.

Actions that are not specifically identified in this RMP/EIS would be analyzed through an environmental assessment or an EIS in accordance with NEPA and the RMP amendment (1610.5-5) portion of the planning regulations (43 CFR 1600).

ALTERNATIVES (GENERAL)

This section of the RMP/EIS describes in detail each of the four alternatives chosen for study. The alternatives include a BLM-preferred plan which, at this stage of the planning process, describes the BLM's preferred course of action for managing the public land in the Phoenix RMP area. A BLM-preferred alternative is identified because the Council on Environmental Quality (CEQ) regulations call for agencies to identify such an alternative if one has been chosen. The CEQ regulations also call for the identification of a range of alternatives so that the environmental consequences of a range of actions can be identified. The four alternatives described in this chapter provide for such a range.

Following the preparation of this Draft EIS (DEIS) and a 90-day public comment period, the BLM will issue a Final EIS and choose a proposed RMP. Therefore, the preferred alternative in this DEIS may change because of environmental impacts identified in this DEIS or comments received during the DEIS public comment period.

The four alternatives chosen for study in this DEIS were developed by the interdisciplinary planning team after reviewing numerous letters received during the RMP public scoping process. Each of the alternatives meets preestablished management objectives to: (1) provide for a range of options from which to choose, (2) be realistic and implementable, (3) resolve the identified planning issues, (4) meet the goals of the RMP planning criteria and (5) provide needed flexibility in making land management decisions.

Most of the land use actions identified in this RMP become implemented upon the BLM State Director's signing of the RMP record of decision (ROD). These actions include the designation of utility corridors, communication sites, areas of critical environmental concern, special management areas, recreation management areas and off-road vehicle (ORV) designations.

Other actions identified in this RMP cannot immediately be implemented upon the approval of the ROD by the BLM State Director. For example, mineral withdrawals on fewer than 5,000 acres must be approved by the Secretary of the Interior while mineral withdrawals on greater than 5,000 acres require congressional review (FLPMA Sec. 204 (c)(1)). Thus, actions such as these may be recommended in this RMP but do not become valid until approved by the appropriate body. However, it is the intent of the BLM to pursue all actions recommended in the proposed RMP.

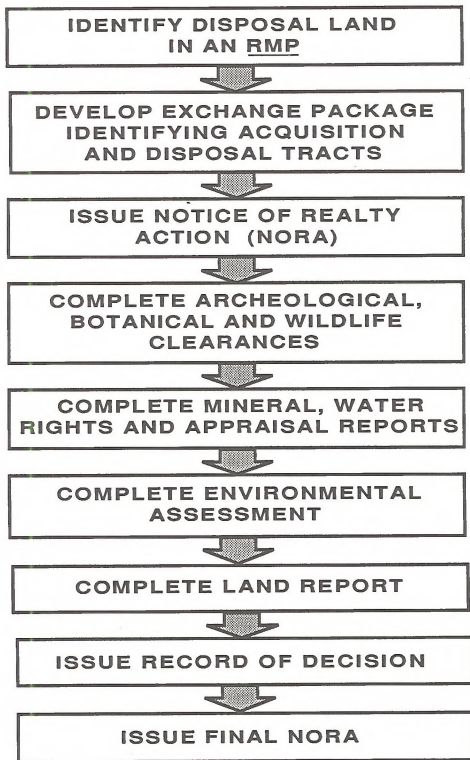
The four alternatives chosen for study center on resolving the land tenure adjustment issue by providing for a range of possible land tenure adjustments from the total retention to the total disposal of all the RMP area's public land. Within this range are alternatives B and C which establish Resource Conservation Areas (RCAs). Within these RCAs, the BLM would retain and intensively manage all public land and would work toward acquiring state and private parcels with resource values that would benefit from public ownership. Acquisition of state and private parcels to consolidate public ownership within the RCAs would take place only with the consent of the Arizona State Land Department or the affected private landowner. Land exchanges would be the primary form of land acquisition. No land purchases to block up ownership in the RCAs are anticipated.

On land identified for disposal in each alternative, no further planning decisions are necessary because disposal is the desired land use. Interim management on disposal land would be as described under the *Management Guidance Common To All Alternatives* section of this chapter. Note that identification of land for disposal is not an irrevocable decision. The proposed plan may identify large amounts of land for disposal; however, until an exchange package is actually proposed this land remains in federal ownership.

Once land is identified in an exchange package, a series of steps are taken before an actual exchange takes place. The exchange process is described in Figure 2-1. Note that all exchanges include a site-specific environmental assessment, complying with NEPA and CEQ regulations, which identifies impacts to resources on the land. If a particular exchange would negatively impact critical resource values, the BLM may opt to retain the land. Identifying public land for disposal in an RMP (as required by FLPMA) is only the first step in the exchange process. The following is a detailed description of each alternative chosen for study in this RMP/EIS.



**FIGURE 2-1
BLM LAND EXCHANGE PROCESS**



DESCRIPTION OF THE ALTERNATIVES

ALTERNATIVE A (No Action)

Alternative A provides a baseline for analysis. The analysis of the impacts of implementing *Alternative A* provides a basis for measuring the effects of the other three alternatives. Under this alternative, resource specialists describe what would occur if the BLM does not resolve the issues identified by management and the public. Under this alternative the BLM would manage the RMP area's public land as described in the *Management Guidance Common to All Alternatives* section of this chapter.

Issue 1 — Land Tenure Adjustment

Under *Alternative A*, all 911,340 acres of federal surface estate and all 2,142,000 acres of federal subsurface estate within the RMP area would be retained in federal ownership. No state or private land acquisitions or exchanges would occur under *Alternative A*.

Issue 2 — Utility Corridors and Communication Sites

No new utility corridors or communication sites would be designated under *Alternative A*. Applications for major utility rights-of-way and for new communication facility sites would continue to be considered on a case-by-case basis. Land use authorizations and non-major rights-of-way would also continue to be issued on an as-needed basis to qualified individuals, businesses and government entities.

Issue 3 — Areas of Critical Environmental Concern (ACECs) and Special Management Areas (SMAs)

No ACECs or SMAs would be designated under *Alternative A*. No new activity plans would be developed nor would the BLM undertake any new habitat improvement projects. Significant resource values would be managed as described in the *Management Guidance Common to All Alternatives* section of this chapter.

Issue 4 — Off-Road Vehicle Designation

Under *Alternative A*, no motorized vehicular travel restrictions would be identified. All public land

except that under interim wilderness management would remain open to ORV use.

Issue 5 — Recreation Management

Alternative A would not identify any specific areas for recreation management emphasis. Under *Alternative A*, the BLM would continue to lease land now being leased under the R&PPA, but no new R&PP leases or patents would be granted. Existing R&PP leases would be renewed if they are in compliance with the terms of the original lease agreement.

Issue 6 — Land Classifications

Current land classifications would continue under *Alternative A*. No new classifications would be pursued and none would be reviewed for possible revocation.



ALTERNATIVE B (The Preferred Alternative)

This alternative is the BLM preferred Resource Management Plan. The preferred plan is designed to resolve the six identified planning issues and alleviate the significant management problems associated with managing the RMP area's scattered land ownership pattern.

Issue 1 — Land Tenure Adjustment

Under *Alternative B*, the BLM would consolidate ownership and intensively manage land in seven Resource Conservation Areas (RCAs). Maps 2-1 through 2-3 provide an overview of the RCAs being considered under this alternative. More detailed drawings of the RCAs are shown in the map section at the end of Chapter 2 (see Maps 2-4 through 2-10). Altogether the seven RCAs contain 49 percent (451,216 acres) public land (surface estate), 38 percent (351,114 acres) state land and 13 percent (119,244 acres) private land (Table 2-1). The BLM would retain all public land (surface and subsurface estate) within the seven RCAs and pursue the acquisition of all state land through the BLM-State of Arizona exchange program. Private land within the RCAs is not specifically identified for acquisition; however, exchange proposals initiated by the private owners within these RCAs would receive consideration by the BLM.

Outside the RCAs, 381,862 acres of public land (surface estate) have been identified as suitable for disposal through the state indemnity selection program or state or private exchange. Up to 4,000 acres have been identified for disposal to benefit the Petrified Forest National Park. An additional 45,236 acres have been identified as suitable for disposal through state indemnity selection, state or private exchange or sale.

Public land identified for disposal by sale meets sales criterion number 1 as described in Sec. 203 (a) of FLPMA, as follows:

"such tract because of its location or other characteristics is difficult and uneconomic to manage as part of the public lands and is not suitable for management by another Federal department or agency." All land identified for disposal by sale or exchange (45,236 acres) meets this criterion.

All land identified as suitable for disposal by sale is identified by tract in Appendix 1.

All disposal land lies outside the RCAs. The land is mostly scattered parcels exhibiting few or low natural resource values. However, some of the identified land has a high economic value and is being identified for exchange so that it may be used to consolidate public ownership within the RCAs. The BLM may use some of the disposal land to acquire land outside the RMP area but within Arizona; however, the blocking up of the RCAs within the RMP area would receive priority.

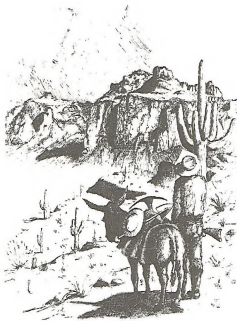
Under *Alternative B*, the BLM would consolidate surface and subsurface estates through the acquisition by exchange of nonfederal mineral estate underlying federal surface holdings. Within the RCAs, CRMAs and R&PP leases, the BLM would retain all federal subsurface mineral estate and acquire through exchange all nonfederal subsurface estate underlying that land for acquisition.

Alternative B also identifies for disposal all subsurface mineral estate that underlies federal surface estate identified for disposal. Therefore, under this alternative, all subsurface mineral estate outside the RCAs, CRMAs and R&PP land would be made available for disposal.

TABLE 2-1
Resource Conservation Areas — Alternative B
Bureau of Land Management, Phoenix District, Arizona

RCA	Federal Surface (acres)	State Surface (acres)	Private Surface (acres)	Total (acres)
Baboquivari	9,500	20,440	7,540	37,480
Silver Bell	104,176	32,054	13,884	150,114
Picacho Mountains	6,400	0	0	6,400
White Canyon	155,000	137,420	38,350	330,770
Black Canyon	33,410	71,000	13,370	117,780
Lake Pleasant	142,090	88,920	44,280	275,290
Tanner Wash	640	1,280	1,820	3,740
TOTAL ACRES	451,216	351,114	119,244	921,574

Source: Phoenix District files.



Issue 2 — Utility Corridors and Communication Sites

Under *Alternative B*, seven utility corridors would be designated. Maps 2-11 through 2-13 at the end of Chapter 2 show the routes of each corridor. These corridors identify priority routes for major utility systems. All the corridors except for the Black Canyon corridor would be one mile in width. The Black Canyon corridor would be two miles wide to prevent overcrowding.

Generally, the corridors are routed either along existing utility systems or are routed so as to avoid known high resource value areas. Routes for the corridors are identified only within the RCAs because public land outside the RCAs is so scattered that designation of useful corridors is impractical.

The recommended utility corridors identify the BLM's preferred utility systems routings. However, with the exception of those areas identified in this RMP as closed to right-of-way development, the RMP area is generally open to right-of-way development on a case-by-case basis.

Under *Alternative B*, five communication sites would be designated. Two of these, Confidence Peak and the Kelvin site, were identified in the 1974 Silver Bell and 1976 Middle Gila Management Framework Plans (MFPs). These already designated sites would continue to be managed for communication facilities under *Alternative B* and Newman Peak (site development dependent upon congressional determination of wilderness suitability), Pan Quemado Peak and the White Tank Mountains would be formally designated as communication sites. Table 2-2 shows each of the recommended communication sites under this alternative.

TABLE 2-2
Communication Sites — Alternative B
Bureau of Land Management,
Phoenix District, Arizona

Name	Location	Acres
White Tanks	T. 3 N., R. 3 W., section 27, 28	50
Newman Peak	T. 8 S., R. 9 E., section 15, 22, 27	60
Confidence Peak	T. 12 S., R. 8 E., section 3	20
Kelvin Site	T. 4 S., R. 13 E., section 19	25
Pan Quemado	T. 13 S., R. 9 E., section 1, 2, 11, 12 T. 14 S., R. 9 E., section 35	160

Source: Phoenix District Files

Under *Alternative B*, communication facility placement within the RCAs will only be allowed on the four designated sites (the White Tanks site is outside an RCA). Land identified for disposal is generally left open for communication site development on a case-by-case basis. Thus, the BLM will consider site applications on this disposal land until such time as disposal takes place.

Issue 3 — Areas of Critical Environmental Concern (ACECs) and Special Management Areas

Under *Alternative B*, six ACECs encompassing 9,971 acres of public land would be designated. An additional 2,600 acres of state and 3,080 acres of private land within these six ACEC boundaries would be designated upon acquisition. Also under *Alternative B*, 9,440 acres of federal and state land on Perry Mesa would be designated as an ACEC upon the acquisition of the state land. Management prescriptions and acreages involved in each ACEC are shown in Table 2-3. Maps 2-14 through 2-19 at the end of Chapter 2 show the boundaries of each ACEC.

Each ACEC recommended under *Alternative B* was nominated for such a designation either by the public or by the BLM planning team. The planning team determined that each meets the relevance and importance criteria required by the BLM planning regulations (CFR 1610.7-2 (a)).

Under *Alternative B*, 19 special management areas (SMAs) would be recognized. Although these areas do

TABLE 2-3
Areas Proposed for ACEC Designation
Alternative B
Bureau of Land Management, Phoenix District, Arizona

Proposed Name	Federal, State and Private Acres	Current Designation or Classification	Importance	Relevance	Planned Actions*
Baboquivari Peak ACEC	F 2,070 S 240 P 720 3,030	Public land portion (2,070 acres) a wilderness study area; proposed for wilderness designation in 1987 Final Phoenix Wilderness EIS	Outstanding natural landmark with significant wildlife, botanical and cultural value	Great religious significance to Tohono O'odham Indians	Designate an ACEC; close entire area to motorized vehicles; prohibit land use authorizations; acquire 960 acres; obtain legal access; initiate mineral withdrawal** on all federal subsurface (2,900 ac.); develop activity plan; prohibit surface occupancy for oil/gas development.
Waterman Mountains ACEC	F 1,960 S 600 P 540 3,100	1,960 public acres identified in 1986 HMP as endangered species habitat	Habitat supports a federally listed endangered plant	One of two localities in U.S.; major threat from mining activity identified	Designate an ACEC; limit motorized vehicles to existing roads and trails; prohibit land use authorizations except along existing roads; acquire 1,140 acres; initiate mineral withdrawal on all 2,320 ac. federal subsurface; implement approved 1986 HMP; prohibit surface occupancy for oil/gas development.
White Canyon ACEC	F 1,920 S 480 2,400	1,920 public acres within the White Canyon Wilderness Study Area; proposed not suitable for wilderness in 1987 Final Wilderness EIS	Outstanding scenic, wildlife and cultural values	Mineral exploration identified as potential threat; public and management interest in preserving scenic and riparian values	Designate an ACEC; close Walnut and White canyons to motorized vehicles and limit motorized travel elsewhere to existing roads and trails; prohibit land use authorizations; acquire 480 acres; develop an activity plan; prohibit surface occupancy for oil and gas development.
Larry Canyon ACEC	F 80 80		Rare pristine riparian deciduous forest within desert ecosystem	Special features of considerable value for studies of a desert riparian system	Designate an ACEC; close entire area to motorized vehicles; prohibit land use authorizations; initiate mineral withdrawal on all 80 ac. federal subsurface; develop an activity plan; prohibit domestic livestock grazing; prohibit surface occupancy for oil/gas development.

(Continued on next page)

TABLE 2-3 (Continued)
Areas Proposed for ACEC Designation
Alternative B
Bureau of Land Management, Phoenix District, Arizona

Proposed Name	Federal, State and Private Acres	Current Designation or Classification	Importance	Relevance	Planned Actions*
Tanner Wash ACEC	F 640 S 1,280 P <u>1,820</u> 3,740	420 public acres identified in 1985 HMP as endangered species habitat	Habitat supports a federally listed endangered plant	Only locality known for the plant; collecting pressures, urbanization and grazing identified threats	Designate an ACEC; close 30 acres to motorized vehicles; limit motorized travel elsewhere to existing roads and trails; prohibit land use authorizations; acquire 3,100 acres; initiate mineral withdrawal on all federal subsurface (640 ac.); continue to implement 1985 HMP; prohibit surface occupancy for oil/gas development.
Appleton-Whittell ACEC	F <u>2,341</u> 2,341	Public land portion of the Appleton-Whittell Biological Research Sanctuary managed by National Audubon Society	Unique laboratory for the study of effects of non-grazing on a desert grassland	Management objective to cooperate in research objectives of the Research Ranch	Designate an ACEC; close 2,341 ac. (except maintained ranch road) to motorized vehicles and prohibit land use actions except as authorized by Research Ranch; do not open to mineral location, leasing or sales; implement 1986 BLM/National Audubon Society MOU; prohibit surface occupancy for oil/gas lease development.
Perry Mesa ACEC	F 960 S <u>8,450</u> 9,440	960 public acres are a National Register Archaeological District	Exhibits a unique blend of three prehistoric cultures	Vandalism identified as serious threat	Designate ACEC upon acquisition of 8,450 state acres; limit motorized vehicles to existing roads/trails; develop an activity plan; acquire 8,484 acres/open acquired land only to mineral leasing/sales.

Source: Phoenix District files.

*Planned Actions: Planned actions will apply to current land and, upon acquisition, to private and state land.

**Mineral Withdrawal: Subject to valid existing rights, the identified area would be closed to mining claim location, mineral leasing and mineral sales. Unless stated otherwise, nonfederal lands acquired within the ACEC boundary will be closed to operation of the mining laws. Expired leases may not be renewed. Mining claims within the ACEC may be examined for validity and contested if appropriate, as determined by the BLM State Director.

not meet the relevance and importance criteria established for designation as ACECs, they do contain high resource values that would benefit from some type of enhanced management. All SMAs are within the seven resource conservation areas identified under this alternative. Table 2-4 describes each SMA under *Alternative B*, provides information on the management goals for each SMA and describes actions that are planned to attain those goals. Maps 2-20 through 2-25 at the end of Chapter 2 show the boundaries of each SMA under *Alternative B*. Two SMAs, the Middle Gila Cultural Resource Management Area and the Gila River Riparian Management Area, are on land currently under withdrawal. These SMAs would only be implemented in cooperation with the agency that currently manages that withdrawn land.

Table 2-4 shows that under *Alternative B* the BLM would designate nine entire allotments as SMAs. On

these allotments, the BLM would develop coordinated resource management plans (CRMPs) which would provide direction for managing all the significant resources within the nine BLM allotments. The nine allotments were chosen by the BLM's interdisciplinary planning team for CRMP development because all contain significant resource values that would benefit from intensive management. Appendix 4 shows the relevant resource values in each of the nine allotments.

Allotments receiving priority for special management are those exhibiting significant potential for range and watershed improvement. Some also have key riparian, protected plant or wildlife habitat. While other allotments might benefit from a CRMP, these nine are all the BLM can realistically implement within this planning cycle.

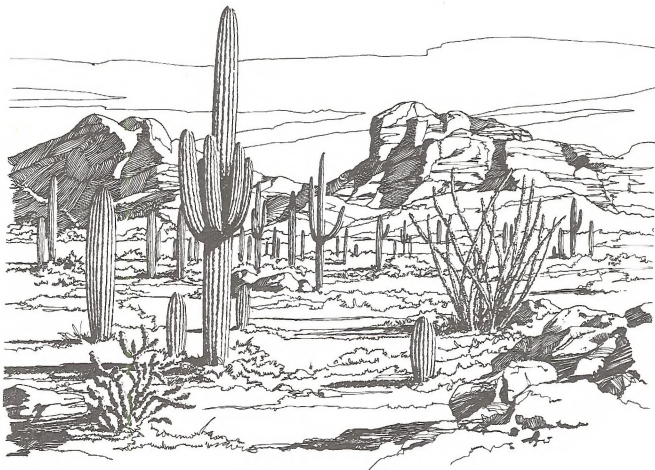


TABLE 2-4
Areas Proposed for Special Management
Alternative B
Bureau of Land Management, Phoenix District, Arizona

Special Management Area (SMA)	Federal, State and Private Acres	Current Designation	Management Goals	Planned Actions
Coyote Mountains Recreation Management Area	F 5,080 S 320 P 320 5,720	5,080 acres BLM WSA; proposed for wilderness designation in 1986 Final Phoenix Wilderness EIS	Manage to enhance recreation values; increase public ownership of state and private holdings	Obtain legal access; develop an activity plan; prohibit land use authorizations; limit vehicular travel to existing roads and trails; prohibit surface occupancy for oil and gas development; acquire land.
Agua Blanco Ranch Multiple Resource Management Area	F 14,419 S&P 2,280 16,699	None	Improve watershed condition to satisfactory; increase soil cover; reduce sediment yield; improve ecological site condition to good; promote recovery of an endangered plant	Develop an activity plan; limit motorized vehicles to existing roads and trails; acquire land.
Cocoraque Butte-Waterman Mountains Multiple Resource Management Area	F 34,749 S&P 13,227 47,976	None	Improve watershed condition to satisfactory; increase soil cover; reduce sediment yield; improve ecological site condition to good; promote recovery of endangered plant	Develop an activity plan; limit motorized vehicles to existing roads and trails; acquire land.
Silver Bell Desert Bighorn Sheep Management Area	F 39,170 S 11,450 P 6,180 56,800	4,460 acres includes Ragged Top WSA	Improve habitat condition for desert bighorn sheep	Develop an activity plan; prohibit surface occupancy for oil and gas development on 800 acres of Ragged Top; limit motorized vehicles to existing roads and trails except close 800 acres on Ragged Top; acquire land.
Avra Valley Cultural Resource Management Area	F 2,720	Contains Cocoraque Butte National Register Historic District	Manage 14 properties for information potential and 1 for conservation values	Develop an activity plan; limit motorized vehicles to existing roads and trails.
Santa Ana del Chiquiburitac	F 20	National Register Historic Places	Manage for public education/interpretative values	Develop an activity plan; close to motorized vehicles.
Picacho Mountains Desert Tortoise Management Area	F 6,400	WSA proposed not suitable for wilderness in 1987 Final Phoenix Wilderness EIS	Maintain existing desert tortoise populations; obtain population data for high and low elevation	Develop a management plan; prohibit surface occupancy of oil and gas leases; close to motorized vehicles.

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TABLE 2-4 (Continued)

Special Management Area (SMA)	Federal, State and Private Acres		Current Designation	Management Goals	Planned Actions
Grayback Mountain-Box O Wash Multiple Resource Management Area	F 37,485 S&P 33,861 <u>71,346</u>		None	Improve watershed condition to satisfactory; increase soil cover; reduce sediment yield and salinity discharge; improve ecological site condition to good; enhance stream flow and water quality	Develop an activity plan; acquire land; limit motorized vehicles to existing roads and trails.
Reymert Townsite Cultural Resource Management Area	F 20		None	Manage for public education/interpretative values	Develop an activity plan; close 20 acres to motorized vehicles.
Middle Gila Cultural Resource Management Area	F 21,940 S 9,800 P <u>1,520</u> 33,260		Under withdrawal for federal water projects	Manage for information, public and conservation values	Develop an activity plan; limit motorized vehicles to existing roads and trails; acquire land.
Gila River Riparian Management Area	F 15 miles		Under withdrawal for federal water projects	Improve condition of riparian vegetation and aquatic habitat for native fish; enhance water quality; limit salinity discharges	Develop an activity plan; limit motorized vehicles to existing roads and trails; prohibit surface occupancy for oil and gas development in riparian zone.
Black Canyon Granite Sales Management Area	F 160		None	Manage as a granite extraction area	Develop an activity plan.
Cordes Junction Multiple Resource Management Area	F 8,763 S&P 5,846 <u>14,609</u>		None	Improve watershed condition to satisfactory; improve condition of riparian vegetation; improve native fish habitat; enhance water quality and stream flow; increase soil cover; reduce sediment yield; improve ecological site condition to good	Develop an activity plan; prohibit surface occupancy of oil and gas leases in riparian zones; prohibit land use authorizations in riparian areas; limit motorized vehicles to existing roads and trails; acquire land.
Sycamore Creek Multiple Resource Management Area	F 2,423 S&P 1,396 <u>3,819</u>		None	Improve condition of riparian vegetation; improve native fish habitat; enhance stream flow and water quality; increase soil cover and reduce sediment yield; improve pronghorn habitat and facilitate their movement	Develop an activity plan; prohibit surface occupancy for oil and gas development in riparian zones; prohibit land use authorizations in riparian areas; limit motorized vehicles to existing roads and trails; acquire land.
Bumble Bee Multiple Resource Management Area	F 12,832 S&P 39,433 <u>52,265</u>		None	Improve watershed condition to satisfactory; improve condition of riparian vegetation; improve native fish habitat; enhance water quality and stream flow; increase soil cover; reduce sediment yield; improve ecological site condition to good; reintroduce native fish, if feasible	Develop an activity plan; prohibit surface occupancy for oil and gas development in riparian areas; prohibit land use authorizations in riparian areas; limit motorized vehicles to existing roads and trails; acquire land.

(Continued on next page)

TABLE 2-4 (Continued)

Special Management Area (SMA)	Federal, State and Private Acres	Current Designation	Management Goals	Planned Actions
Williams Mesa Multiple Resource Management Area	F 27,384 S&P 23,346 59,735	None	Improve watershed condition to satisfactory; improve riparian vegetation condition; improve native fish habitat and reintroduce native fish, if feasible; enhance stream flow and water quality; increase soil cover; reduce sediment yield; improve ecological site condition to good	Develop an activity plan; prohibit surface occupancy for oil and gas development in riparian areas; prohibit land use authorizations in riparian areas; close 3.5 miles of Tule Creek to motorized vehicles, elsewhere to existing roads and trails; acquire land.
Hassayampa River Riparian Management Area	F 12 miles S 4 miles 16 miles	Part of Hassayampa River WSA; proposed not suitable for wilderness designation in 1987 Final Phoenix Wilderness EIS	Improve condition of riparian habitat; improve condition of native fish habitat and reintroduce native fish, if feasible; enhance water quality	Develop an activity plan; limit motorized vehicles to existing roads and trails; prohibit surface occupancy for oil and gas leases in riparian areas; prohibit land use authorizations in riparian areas; acquire land.
Hells Canyon Recreation Management Area	F 9,379 S 640 P 720 10,739	9,379 acres WSA; proposed not suitable for wilderness designation in 1987 Final Phoenix Wilderness EIS	Manage to maintain primitive recreation values	Develop an activity plan; limit motorized vehicles to existing roads and trails; acquire land.
Lake Pleasant Burro Herd Management Area	F 57,412 S 13,795 P 9,593 80,800	None	Improved habitat for burros; maintain an 80-animal herd	Reserve forage for 80 burros; develop a herd management plan; acquire land.

Source: Phoenix District files.

Issue 4 — Off-Road Vehicle Designations

Under *Alternative B*, vehicular travel would be limited to existing roads and trails on all the RMP area's public land with the exception of those areas specifically identified as closed.

A total of 11,761 acres and 6.5 miles of existing roads or trails would be closed to vehicular traffic under this alternative. The closed areas are listed under the appropriate ACEC or special management area recommendations in Tables 2-3 and 2-4.

Issue 5 — Recreation Management

Under *Alternative B*, the Coyote Mountains and Hells Canyon would become BLM special recreation management areas (see Maps 2-20 and 2-25). Table 2-4 describes the management goals and planned actions the BLM would take to enhance recreation opportunities in these two areas. The Coyote Mountains and Hells Canyon are now wilderness study areas (WSAs). Management of these two WSAs as recreation management areas would occur only if the two areas are not designated wilderness by Congress.

Table 2-5 identifies land slated for development as cooperative recreation management areas (CRMAs). Five CRMAs would be established under *Alternative B* (see Maps 2-26 through 2-31 at the end of Chapter 2).

These CRMAs exhibit significant recreation values and have been identified by county and state governments as important areas for intensive recreation uses. For each of these CRMAs, the BLM and the cooperating government agency would jointly develop a cooperative management agreement detailing the role of each in managing recreation activities in the CRMA.

The areas recommended for CRMA designation and acreages are as follows:

1. **Lake Pleasant** — 6,760 acres BLM; 29,840 acres state; 3,260 acres private. The BLM, Bureau of Reclamation (BOR) and Maricopa Co. would work to acquire up to 29,360 state acres and 2,140 acres of private land.
2. **San Tan Mountains** — 6,800 - BLM, 320 -state, 0 - private. The BLM would work to acquire 320 state acres.
3. **Black Canyon Trails** — 3,534 - BLM, 0 - state, 0 - private.
4. **Tortolita Mountains** — 1,560 - BLM, 9,480 -state, 6,440 - private. The BLM would work to acquire up to 2,790 state acres.
5. **Sawtooth Mountains** — 15,188 - BLM, 640 -state, 0 - private. The BLM would work to acquire 640 acres of state land.

Under *Alternative B*, several parcels would be slated for transfer to local governments or agencies under the R&PPA. This land would initially be

TABLE 2-5
Disposition of Selected Recreation Land by Alternative
Bureau of Land Management, Phoenix District, Arizona

Parcel	Alternative			
	A	B	C	D
Black Canyon Trails	Retain	CRMA*	CRMA	Disposal
Lake Pleasant	Retain	CRMA	CRMA	Disposal
San Tan Mountains	Retain	CRMA	CRMA	Disposal
Tortolita Mountains	Retain	CRMA	R&PPA	Disposal
Picacho Mountains	Retain	Retain	CRMA	Disposal
Goldfield	Retain	R&PPA**	R&PPA	Disposal
Picacho Reservoir	Retain	R&PPA	Disposal	Disposal
Zion Reservoir	Retain	R&PPA	Disposal	Disposal
Saginaw Hill	Retain	R&PPA	Disposal	Disposal
Tucson Mountain Park Ext.	Retain	R&PPA	Disposal	Disposal
Sawtooth Mountains	Retain	CRMA	Retain	Disposal

*CRMA — A Cooperative Recreation Management Area where the BLM enters into a cooperative management agreement with a local government agency to manage recreation land.

**R&PPA — Recreation and Public Purpose Act under which the BLM transfers title of a parcel to a managing agency. This land must be used for public purposes by the grantee.

Source: Phoenix District files.

retained in federal ownership until such time as the grantee files an R&PP lease application and has an approved plan of development for those parcels. Table 2-5, by alternative, identifies the land identified for transfer under the R&PP Act. Land recommended for R&PPA transfer was identified by local government entities during the RMP scoping process. Land recommended for R&PPA transfer under *Alternative B* includes: (1) Goldfield to the City of Apache Junction for park development (1,140 acres), (2) Saginaw Hill (460 acres) and Tucson Mountain Park Extension (910 acres) to Pima County for park development and (3) Picacho Reservoir (350 acres) and Zion Reservoir (280 acres) to the Arizona Game and Fish Department for the protection of wildlife values (see Maps 2-32 through 2-36 at the end of this chapter).

Issue 6 — Land Classifications

The RMP area is currently encumbered by five multiple use classifications affecting 12,177 acres. Under *Alternative B*, the five classifications identified in Table 2-6 would be terminated.

Land currently under these classifications would return to multiple use management and would be managed under the guidance of this RMP/EIS.

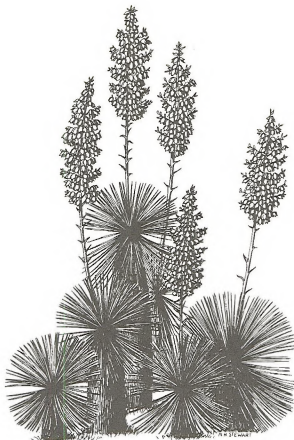


TABLE 2-6
Multiple Use Classifications Recommended for Revocation — Alternatives B and C
Bureau of Land Management, Phoenix District, Arizona

Serial Number	Classification		Segregated From
	Acres	Date	
A-662	2,974 (Oracle Junction)	12-14-1967	Agricultural Laws, Private Exchange, State Selection, Mining, State Exchange, RS 2455 Sales
A-918	5,083 (Coyote Mountains)	11-18-1967	Agricultural Laws, Private Exchange, RS 2455 Sales, State Selection, Act: 09-19-1964 Sale
*A-922	437 (Fred J. Weiler Greenbelt)	08-31-1967	Agricultural Laws, RS 2455 Sales, Private Exchange, State Exchange, State Selection, RS 2477, Mining Laws
A-1821	3,657 (Baboquivari Mountains)	12-12-1969	Agricultural Laws, RS 2455 Sales, Act: 09-19-1964 Sale
**A-1029	26 (Lost Dutchman State Park)	10-06-1967	Agricultural Laws, RS 2455 Sales, Act: 09-19-1964 Sale, R&PP Act, Private Exchange, State Exchange, State Selection, RS 2477, Mining Laws

* This area is and would remain under PLO 1015 withdrawal to benefit wildlife.

** This area has been transferred to the state under the R&PPA.

Source: Phoenix District files.

ALTERNATIVE C

Alternative C incorporates many of the features present in *Alternative B* in that *Alternative C* centers on the development of resource conservation areas (RCAs). Some RCAs in this alternative are simply boundary adjustments of those identified in *Alternative B*.

In addition, where two viable options exist for managing an area, one option is included in *Alternative B* while the other is found in *Alternative C*. For example, the Waterman Mountains ACEC in *Alternative B* contains only known habitat for the Nichol Turk's head cactus while *Alternative C* incorporates all known and identified potential habitat for this species.

Purposely *Alternative C* was not developed along a production- or protection-oriented theme. Rather, *Alternative C* comprises realistic management options to those contained in *Alternative B*.

Issue 1 — Land Tenure Adjustment

Under *Alternative C*, the BLM would consolidate ownership through exchange and intensively manage land in six Resource Conservation Areas (RCAs). Maps 2-1 through 2-3 provide an overview of the RCAs under this alternative. The six RCAs contain 47 percent (473,555 acres) public land, 40 percent (398,280 acres) state land and 13 percent (134,058 acres) private land (Table 2-7).

Maps 2-4 through 2-10, at the end of Chapter 2, provide detailed descriptions of the RCA boundaries under this alternative. The BLM would retain all public land (surface and subsurface estate) within the six RCAs and pursue the acquisition of all state land

through the BLM-State of Arizona exchange program. Private land within the RCAs is not specifically identified for acquisition; however, exchange proposals initiated by the private owners within these RCAs would receive consideration by the BLM.

Four of the RCAs identified in this alternative are boundary adjustments to the Tanner Wash, White Canyon, Silver Bell and Baboquivari RCAs identified in *Alternative B*. No changes in the Black Canyon or Lake Pleasant RCA boundaries identified in *Alternative B* are proposed under this alternative. This alternative does, however, drop the Picacho Mountains from RCA consideration and instead designates the Picacho Mountains as a Cooperative Recreation Management Area.

Outside the six RCAs, 372,837 acres of public land (surface estate) have been identified as suitable for disposal through state indemnity selection or state or private exchange. Up to 4,000 acres have been identified for disposal to benefit the Petrified Forest National Park. In addition, 42,538 acres have been identified as suitable for disposal through state or private exchange or sale. This land is identified in Appendix 1 by tract. All public land identified for disposal by sale meets criteria number 1 in Sec. 203(a) of FLMPA, as follows: "... such tract because of its location or other characteristics is difficult and uneconomic to manage as part of the public lands and is not suitable for management by another Federal department or agency."

All disposal land lies outside the RCAs and generally consists of scattered parcels exhibiting few or low natural resource values. The BLM may use some of the disposal land to acquire land outside the RMP area but within Arizona; however, the blocking up of the RCAs within the RMP area would receive priority.

TABLE 2-7
Resource Conservation Areas — Alternative C
Bureau of Land Management, Phoenix District, Arizona

RCA	Federal (BLM) (acres)	State (acres)	Private (acres)	Total (acres)
Baboquivari	9,500	51,920	14,160	75,580
Silver Bell	133,148	79,280	26,660	239,088
White Canyon	153,680	105,880	32,930	292,490
Black Canyon	33,410	71,000	13,370	117,780
Lake Pleasant	142,090	88,920	44,280	275,290
Tanner Wash	1,727	1,280	2,658	5,665
TOTAL ACRES	473,555	398,280	134,058	1,005,893

Source: Phoenix District files.

Under *Alternative C*, the BLM would consolidate surface and subsurface estates through the acquisition by exchange of nonfederal mineral estate underlying federal surface holdings. Within the RCAs, CRMAs and R&PP leases, the BLM would retain all federal subsurface mineral estate and acquire through exchange all nonfederal subsurface estate underlying that land identified for acquisition.

Alternative C also identifies for disposal all subsurface mineral estate that underlies federal surface estate identified for disposal. Therefore, under this alternative, all subsurface mineral estate outside the RCAs, CRMAs and R&PP land would be made available for disposal.

Issue 2 — Utility Corridors and Communication Sites

Alternative C recommends designation of seven utility corridors within the five RCAs (see Maps 2-11 through 2-13). Six of these corridors are essentially the same corridors identified in *Alternative B* except that the boundary changes of the RCAs somewhat affect the corridor routings under this alternative. Thus, under *Alternative C*, routings of the six utility corridors would adjust as the boundaries of the RCAs change.

Alternative C identifies one new corridor not identified in *Alternative B*—a mile-wide corridor across Perry Mesa in the Black Canyon RCA following existing transmission lines.

Under *Alternative C*, four communications sites would be designated (Table 2-8). These sites are the same as those described in *Alternative B* except that under this alternative Confidence Peak would be closed to further site development.

TABLE 2-8
Communication Sites — Alternative C
Bureau of Land Management,
Phoenix District, Arizona

Name	Location	Acres
White Tanks	T. 3 N., R. 3 W., section 27, 28	50
Newman Peak (RMP)	T. 8 S., R. 9 E., section 15, 22	30
Kelvin Site (MFP)	T. 4 S., R. 13 E., section 19	2
Pan Quemado (RMP)	T. 13 S., R. 9 E., section 11, 12	10

Source: Phoenix District files.

Issue 3 — Areas of Critical Environmental Concern and Special Management Areas

Under *Alternative C*, five ACECs totaling 17,898 public acres and, upon acquisition, an additional 2,760 state acres and up to 3,958 private acres would be designated. Because of overlapping boundaries, Perry Mesa and Larry Canyon ACECs have been combined under this alternative. The 19,680-acre Perry Mesa ACEC would be designated only if the BLM acquires the state land within the ACEC boundary. However, the designation of Larry Canyon (80 acres) would not depend on the acquisition of the Perry Mesa land. *Alternative C* differs from *Alternative B* primarily by recommending expanded boundaries for the Waterman Mountains, White Canyon, Perry Mesa-Larry Canyon and Tanner Wash ACECs. Management prescriptions and acreages involved in each ACEC under this alternative are shown in Table 2-9. Maps 2-14 through 2-19 at the end of this chapter show the boundaries of each ACEC under this alternative.

Under *Alternative C*, a total of 18 special management areas (SMAs) would be designated. These SMAs are the same as those identified in *Alternative B* except that under *Alternative C*, the Picacho Mountains would become a CRMA rather than a desert tortoise SMA. See Table 2-10 for information on the established management goals for each SMA and the planned actions the BLM will take to attain those goals. Boundaries for each SMA are shown on Maps 2-20 through 2-25.

Issue 4 — Off-Road Vehicle Designations

Under this alternative vehicular travel on all public land would be limited to existing roads and trails except for 10,441 acres and 6.5 miles of road that would be closed. The areas and closures are listed under the appropriate ACEC or SMA in Tables 2-9 and 2-10.

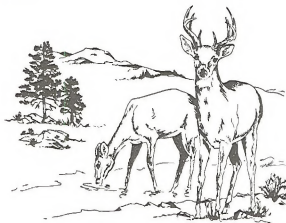


TABLE 2-9
Areas Proposed for ACEC Designation — Alternative C
Bureau of Land Management, Phoenix District, Arizona

Proposed Name	Federal, State or Private Acres	Current Designation or Classification	Importance	Relevance	Planned Actions*
Baboquivari Peak ACEC	F 2,070 S 240 P 720 <u>3,030</u>	2,070 acres public land portion a Wilderness Study Area proposed for wilderness designation in 1986 Phoenix Wilderness EIS	Outstanding natural landmark with significant wildlife, botanical and cultural values	Great religious significance to Tohono O'odham Indians	Designate an ACEC; close to motorized vehicles; prohibit land use authorizations; develop an activity plan; acquire 960 acres; obtain legal access; initiate mineral withdrawal** on all federal subsurface (2,900 ac.); prohibit surface occupancy for oil/gas development.
Waterman Mountains ACEC	F 3,440 S 600 P 540 <u>4,580</u>	2,368 public acres identified in 1986 HMP as endangered species habitat	Habitat supports a federally listed endangered plant	One of two localities in U.S.; major threat from mining activity identified	Designate an ACEC; implement 1986 HMP; prohibit land use authorizations except along existing roads; limit motorized vehicles to existing roads and trails; acquire land; initiate mineral withdrawal on all federal subsurface (3,650 ac.); prohibit surface occupancy for oil/gas lease development.
White Canyon ACEC	F 8,320 S 640 <u>8,960</u>	Includes the 6,968-acre White Canyon Wilderness Study Area; proposed not suitable for wilderness in 1987 Final Phoenix Wilderness EIS	Outstanding scenic, wildlife and cultural values	Mineral exploration identified as potential threat; public and management interest in preserving scenic and riparian values	Designate an ACEC; develop activity plan; close White and Walnut canyons to motorized vehicles; limit elsewhere to existing roads and trails; prohibit land use authorizations; acquire 640 acres; prohibit surface occupancy for oil and gas lease development.
Tanner Wash ACEC	F 1,727 S 1,280 P 2,658 <u>5,665</u>	420 public acres identified in 1985 HMP as endangered species habitat	Habitat supports a federally listed endangered plant	Only locality known for the plant; collecting pressures, urbanization and gravel extraction identified threats	Designate an ACEC; continue to implement 1985 HMP; acquire 3,938 acres; close 30 acres to motorized vehicles; limit motorized vehicles elsewhere to existing roads and trails; prohibit land use authorizations; initiate mineral withdrawal on all federal subsurface (1,729 ac.); prohibit surface occupancy for oil/gas development.

(Continued on next page)

TABLE 2-9 (Continued)
Areas Proposed for ACEC Designation — Alternative C
Bureau of Land Management, Phoenix District, Arizona

Proposed Name	Federal, State or Private Acres	Current Designation or Classification	Importance	Relevance	Planned Actions*
Appleton-Whittell ACEC	F 2,341	Represents public land portion of Appleton-Whittell Biological Research Sanctuary managed by National Audubon Society	Unique laboratory for study of effects of non-grazing on a desert grassland	Management objective to cooperate in research objectives of Research Ranch	Designate an ACEC; implement provisions of 1986 MOU between the BLM and National Audubon Society; close 2,341 ac. (except maintained ranch road) to motorized vehicles and prohibit land use actions except as authorized by Research Ranch; do not open to mineral location, leasing or sales.
Perry Mesa-Larry Canyon ACEC	F 1,680 S 18,040 P 40 19,760	1,280 of the public acres are a National Register Archaeological District	Exhibits a unique blend of three prehistoric cultures and 80 acres of pristine riparian habitat	Vandalism has been identified as a serious threat to cultural properties; riparian features of considerable research value	Designate an ACEC upon acquisition of 18,040 state ac.; close 80 ac. in Larry Canyon to motorized vehicles and limit motorized travel elsewhere to existing roads/trails; develop an activity plan; introduce endangered topminnow into Larry Canyon; acquire 18,040 ac.; open acquired land to mineral leasing/sales; initiate mineral withdrawal on all federal subsurface (80 ac.) in Larry Canyon.

Source: Phoenix District files.

*Planned Actions: Planned actions will apply to current land and, upon acquisition, to private and state land.

**Mineral Withdrawal: Subject to valid existing rights, the identified area would be closed to mining claim location, mineral leasing and mineral sales. Unless stated otherwise, nonfederal lands acquired within the ACEC boundary will be closed to operation of the mining laws. Expired leases may not be renewed. Mining claims within the ACEC may be examined for validity and contested if appropriate, as determined by the BLM State Director.

TABLE 2-10
Areas Proposed for Special Management — Alternative C
Bureau of Land Management, Phoenix District, Arizona

Special Management Area (SMA)	Federal, State and Private Acres	Current Designation	Management Goals	Planned Actions
Coyote Mountains Recreation Management Area	F 5,080 S 3,360 P 2,040 <u>10,480</u>	5,080 acres WSA; proposed for wilderness designation in 1987 Final Phoenix Wilderness EIS	Manage to maintain primitive recreation values of existing WSA; increase public ownership of state and private holdings	Obtain legal access; develop an activity plan; prohibit land use authorizations; limit vehicular travel to existing roads/trails; prohibit surface occupancy for oil/gas development; acquire land.
Agua Blanco Ranch Multiple Resource Management Area	F 14,419 S&P 2,280 <u>16,699</u>	None	Improve watershed condition to satisfactory; increase soil cover; reduce sediment yield; improve ecological site condition to good; promote recovery of an endangered plant	Develop an activity plan; limit motorized vehicles to existing roads/trails; acquire land.
Cocoraque Butte-Waterman Peak Multiple Resource Management Area	F 34,749 S&P 13,227 <u>47,976</u>	None	Improve watershed condition to satisfactory; increase soil cover; reduce sediment yield; improve ecological site condition to good; promote recovery of two endangered plants	Develop an activity plan; limit motorized vehicles to existing roads/trails; acquire land.
Silver Bell Desert Bighorn Sheep Management Area	F 39,170 S 11,450 P 6,180 <u>56,800</u>	Contains 4,460-acre Ragged Top WSA	Improve habitat condition for desert bighorn sheep	Develop an activity plan; prohibit surface occupancy for oil and gas development on 800 ac. of Ragged Top; limit motorized travel to existing roads/trails except close 800 ac. on Ragged Top; acquire land.
Avra Valley Archaeological Management Area	F 2,720	Contains Cocoraque Butte National Register Historical Dist.	Manage 14 properties for information potential and one for conservation values	Develop an activity plan; limit motorized vehicles to existing roads/trails.
Santa Ana del Chiquiburitac	F 20	National Register Historic Places	Manage for public education and interpretative values	Develop an activity plan; close 20 acres to motorized vehicles.
Grayback-Mountain Box O Wash Multiple Resource Management Area	F 37,485 S&P 33,861 <u>71,346</u>	None	Improve watershed condition to satisfactory; increase soil cover; reduce sediment yield and salinity discharge; improve ecological site condition to good; enhance stream flow and water quality	Develop an activity plan; limit motorized vehicles to existing roads/trails; acquire land.

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TABLE 2-10 (Continued)
Areas Proposed for Special Management — Alternative C
Bureau of Land Management, Phoenix District, Arizona

Special Management Area (SMA)	Federal, State and Private Acres	Current Designation	Management Goals	Planned Actions
Reymert Townsite Management Area	F 20	None	Manage for public educational and interpretative values	Develop an activity plan; close 20 acres to motorized vehicles.
Middle Gila Archaeological Management Area	F 21,940 S 9,800 P 1,520 33,260	Under withdrawal for federal water projects	Manage for information, public and conservation values	Develop an activity plan; limit motorized vehicles to existing roads/trails; acquire land.
Gila River Riparian Management Area	F 15 miles	Under withdrawal for federal water projects	Improve condition of riparian vegetation and aquatic habitat for native fish; enhance water quality; limit salinity discharge	Develop an activity plan; limit motorized vehicles to existing roads/trails; prohibit surface occupancy for oil/gas development in riparian area; acquire land.
Black Canyon Granite Sales Management Area	F 160	None	Manage as a granite extraction area	Develop an activity plan.
Cordes Junction Multiple Resource Management Area	F 8,763 S&P 5,846 14,609	None	Improve watershed condition to satisfactory; improve condition of riparian vegetation; improve native fish habitat; enhance stream flow and water quality; increase soil cover; reduce sediment yield; improve ecological site condition to good	Develop an activity plan; prohibit surface occupancy for oil and gas development in riparian areas; prohibit land use authorizations in riparian areas; limit motorized vehicles to existing roads/trails; acquire land.
Sycamore Creek Multiple Resource Management Area	F 2,423 S&P 1,396 3,819	None	Improve condition of riparian vegetation; improve native fish habitat; enhance stream flow and water quality; increase soil cover; reduce sediment yield; improve pronghorn habitat and facilitate their movement	Develop an activity plan; prohibit surface occupancy for oil and gas development in riparian areas; prohibit land use authorizations in riparian areas; limit motorized vehicles to existing roads/trails; acquire land.
Bumble Bee Multiple Resource Management Area	F 12,832 S&P 39,433 52,265	None	Improve watershed condition to satisfactory; improve condition of riparian and native fish habitats and reintroduce native fish, if feasible; enhance stream flow and water quality; increase soil cover; reduce sediment yield; improve ecological site condition to good	Develop an activity plan; prohibit surface occupancy for oil and gas development in riparian areas; prohibit land use authorizations in riparian areas; limit motorized vehicles to existing roads/trails; acquire land.

(Continued on next page)

TABLE 2-10 (Continued)
Areas Proposed for Special Management — Alternative C
Bureau of Land Management, Phoenix District, Arizona

Special Management Area (SMA)	Federal, State and Private Acres	Current Designation	Management Goals	Planned Actions
Williams Mesa Multiple Resource Management Area	F 27,389 S&P 32,346 59,735	None	Improve watershed condition to satisfactory; improve condition of riparian and native fish habitats and reintroduce native fish, if feasible; enhance stream flow and water quality; increase soil cover; reduce sediment yield; improve ecological site condition to good; maintain viability of existing burro herd	Develop an activity plan; prohibit surface occupancy for oil and gas development in riparian areas; prohibit land use authorizations in riparian areas; close 3.5 miles of trail along Tule Creek to motorized vehicles, elsewhere limited to existing roads/trails; acquire land.
Hassayampa River Riparian Management Area	F 12 miles S 4 miles 16 miles	Part of Hassayampa River WSA; proposed not suitable for wilderness in 1987 Final Phoenix Wilderness EIS	Improve condition of riparian habitat; improve condition of native fish habitat; enhance water quality and reintroduce native fish, if feasible	Develop an activity plan; limit motorized vehicles to existing roads/trails; prohibit surface occupancy for oil/gas development in riparian area; prohibit land use authorizations in riparian areas; acquire land.
Hells Canyon Recreation Management Area	F 9,379 S 640 P 720 10,739	9,379 ac. WSA; proposed not suitable in 1987 Final Phoenix Wilderness EIS	Manage to maintain primitive recreation values	Develop an activity plan; limit motorized vehicles to existing roads/trails; acquire land.
Lake Pleasant Burro Herd Management Area	F 46,135 S 5,190 P 5,675 57,000	None	Improved habitat for burros; maintain 60-animal herd develop a herd management plan;	Reserve forage for 60 burros; develop a herd management plan; acquire land.

Source: Phoenix District Files

Issue 5 — Recreation Management

Under *Alternative C*, two current Wilderness Study Areas (if not designated wilderness) would be designated as BLM Recreation Management Areas—the Coyote Mountains (5,080 BLM acres) and Hells Canyon (9,379 acres) (see Maps 2-20 and 2-25).

Under *Alternative C*, several parcels would be slated for transfer to local governments or agencies under the R&PPA (Table 2-5). This land would be retained in federal ownership until the grantee files an R&PP lease application with an approved plan of development and is issued a patent.

Note the difference between *Alternative C* and *Alternative B*. Essentially *Alternative C* recommends a lesser amount of BLM involvement in the administration of the land shown in Table 2-5. Under this alternative, public land at Picacho and Zion reservoirs would be identified for disposal through exchange rather than transferred under the R&PPA as is proposed in *Alternative B*. Land recommended for R&PPA transfer in *Alternative C* is shown on Maps 2-32 and 2-36 and includes: (1) Goldfield to the City of Apache Junction for park development (992 acres) and (2) Tortolita Mountains to Pima County for park development (1,560 acres).



Table 2-5 also identifies land slated for designation as cooperative recreation management areas (CRMAs). *Alternative C* would establish four Cooperative Recreation Management Areas (CRMAs) (see Maps 2-26, 2-27, 2-28 and 2-31)—areas identified as best managed for intensive public recreation uses. For each CRMA the BLM and appropriate county or state agency would develop a cooperative management agreement and that would provide for joint management of the area.

The areas recommended for CRMA designation under *Alternative C* and acreages are as follows:

1. **Black Canyon Trails** — 3,534 - BLM, 0 - state, 0 - private.
2. **Lake Pleasant** — 6,760 - BLM, 29,840 - state, 3,260 - private. The BLM, Bureau of Reclamation (BOR) and Maricopa Co. would work to acquire the state and private acres.
3. **San Tan Mountains** — 7,120 acres BLM, 480 acres state, 320 acres private. The BLM would work to acquire 480 acres of state land contingent upon the cooperating agency acquiring 320 acres of private land.
4. **Picacho Mountains** — 6,400 - BLM, 0 - state, 0 - private.

Issue 6 — Land Classifications

The multiple use classifications recommended for termination under *Alternative C* are the same as those described under *Alternative B*.

ALTERNATIVE D (Total Disposal)

Under *Alternative D*, the BLM would dispose of all the planning area's public land. *Alternative D* serves to provide baseline information on the impacts of the BLM relinquishing total ownership of all land within the planning area. Under this alternative, all land within the planning area is assumed to come under private control. Total disposal may be constrained by various laws and/or restrictions identified under the section on "Management Guidance Common to All Alternatives" earlier in this chapter. However, in order to analyze the impacts of all land coming under private control, it is necessary under *Alternative D* to assume that all land can be disposed.

The primary purpose of *Alternative D* is to provide impact assessments in the event that any particular parcel in the RMP area were to be slated for private exchange. It is likely that in the future the BLM may opt to enter into private exchanges utilizing high dollar value land in the RMP area as exchange land.

Because the exact location of such land is currently unknown this alternative serves to identify the impacts of such an exchange on all RMP area public land.

In addition, *Alternative D* serves to fill in the range of alternatives considered in this EIS as required by NEPA. With *Alternative D* the full range of realistic actions the BLM could take are included in this RMP/EIS.

Issue 1 — Land Tenure Adjustment

Under *Alternative D*, all 911,343 acres of federal surface estate and 2,142,060 acres of federal subsurface estate in the RMP area would be identified for disposal through exchange or sale. Under this alternative the land currently being leased under the R&PPA would continue to be leased until the current lease term expires. Upon expiration this leased land would also be made available for disposal through exchange or sale.

Issue 2 — Utility Corridors and Communication Sites

No utility corridors or communication sites would be identified under this alternative. Rights-of-way on land identified for disposal under this alternative would continue to be recognized until such time as the land is transferred out of federal ownership. Right-of-way applicants would be required to deal with the new landowner if an existing right-of-way were to continue or a new right-of-way were needed.

Issue 3 — Areas of Critical Environmental Concern (ACECs) and Special Management Areas (SMAs)

No ACECs or SMAs would be designated under this alternative.

Issue 4 — Off-Road Vehicle Designation

Under *Alternative D*, travel in motorized vehicles would be subject to local laws and regulations. No formal ORV designations would be made under this alternative.

Issue 5 — Recreation Management

Under *Alternative D*, all important recreation land would be transferred out of federal ownership.

Recreationists would be required to deal with the new landowner to gain recreational access.

Issue 6 — Land Classifications

Under this alternative, all land classifications would be reviewed to determine current validity. Those found no longer valid would be terminated or revoked and the land made available for disposal.

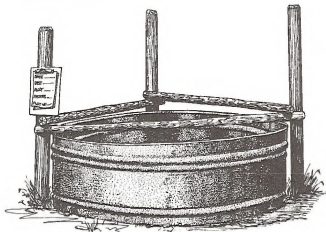
ALTERNATIVES CONSIDERED BUT NOT ANALYZED

Several alternatives to the four chosen for study were considered, but each was dropped for various reasons. The alternatives that were considered but not chosen for study are addressed below for each planning issue:

LAND TENURE ADJUSTMENT

Several land tenure adjustment alternatives to the four chosen for study were considered but were eliminated from further analysis. Each of these alternatives centered on the acquisition and retention of land in the RMP area.

In Apache and Navajo counties, alternatives were considered to acquire and attempt to block-up pronghorn antelope habitat and significant cultural areas. These alternatives would have required complex trades among the BLM, the Arizona State Land Department and numerous private owners. Because of the complexities involved in making these trades, the BLM determined that consolidation of enough land to make contiguous blocks would be impractical. Therefore, this alternative was not considered for further study.



Alternatives were also considered whereby the BLM would block up ownership in the Sierrita and Las Guijas mountains in the RMP area's southern portion. While each of these areas contains important resource values, the federal government is a minority landowner in the two mountains. This, coupled with the fact that the mountains have many different private owners, makes the acquisition of large blocks impractical and precludes these two areas from further consideration.

UTILITY CORRIDORS AND COMMUNICATION SITES

A utility corridor alternative that would have followed all routes recommended in the 1986 Western Utility Group Study (Western Utility Group, 1986) was considered. Consideration of all the identified corridors would have placed corridors across highly scattered land with only small amounts of publicly owned land. Such corridors would not be useful as the vast majority of the land traversed in these corridors would be nonfederal and the BLM would exert little control over utility system routings. Therefore, this alternative was dropped from further consideration.

An additional alternative was considered that would provide two designated corridors in the Black Canyon area. One corridor would have followed Interstate 17 while the other would follow existing transmission lines on Perry Mesa. It was determined that one route through Black Canyon would provide sufficient routings for all anticipated utility systems. Therefore, an alternative with two corridors in the Black Canyon area was dropped from further consideration.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN AND SPECIAL MANAGEMENT AREAS

The interdisciplinary planning team considered ACEC designation for six areas that were not analyzed in any of the alternatives chosen for study in this RMP/EIS. Each of these six areas were considered for ACEC designation; however, the planning team felt that the resource values present in each of the areas did not meet the relevance and/or importance criteria required for ACEC designation (CFR 1610.7-2). Nominations for ACECs considered but rejected by the planning team include Owl Head Butte, Ragged Top, Sawtooth Mountains, Cedar Basin, Tule Spring and the Middle Gila Archaeological Zone.

The designation of several special management areas on land identified for disposal was considered.

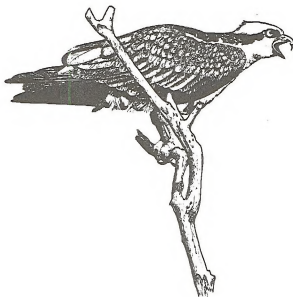
However, the planning team felt that any special management measures taken by the BLM should only occur on land slated for retention. Therefore, any SMA recommendations made on land slated for disposal were not considered in any alternative.

OFF-ROAD VEHICLE DESIGNATIONS

An alternative was considered that would have closed all public land to motorized vehicle travel unless the area was signed as being open to such travel. Implementation of this alternative was deemed impractical because the RMP area's numerous public roadways crossing scattered public land preclude an effective signing program.

RECREATION MANAGEMENT

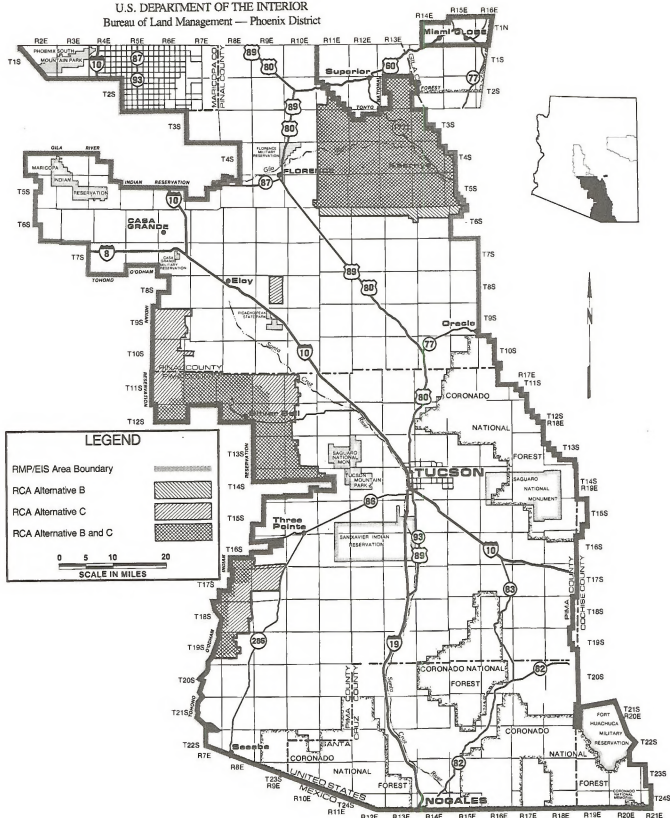
An alternative was considered that would have identified several additional special recreation management areas. The Hassayampa River Canyon and the Sawtooth, San Tan, Picacho and Ragged Top mountains were all considered for designation as special recreation management areas. However, while these areas contain high value recreation resources, it was determined that the areas do not meet the criteria necessary for such a designation. Therefore, these areas were dropped from further analysis.



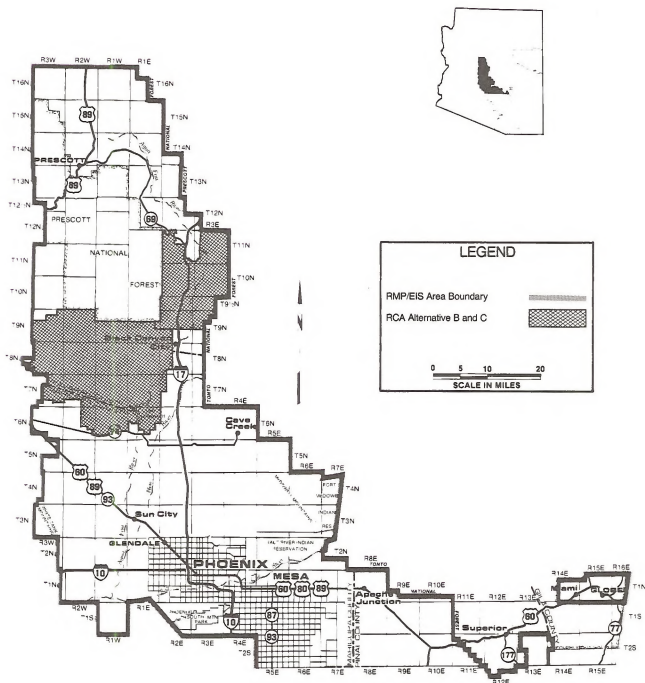
RESOURCE CONSERVATION AREAS (OVERVIEW)

MAP NUMBER	NAME
2-1	SOUTH CENTRAL PORTION RCAs
2-2	NORTH CENTRAL PORTION RCAs
2-3	APACHE-NAVAJO PORTION RCAs

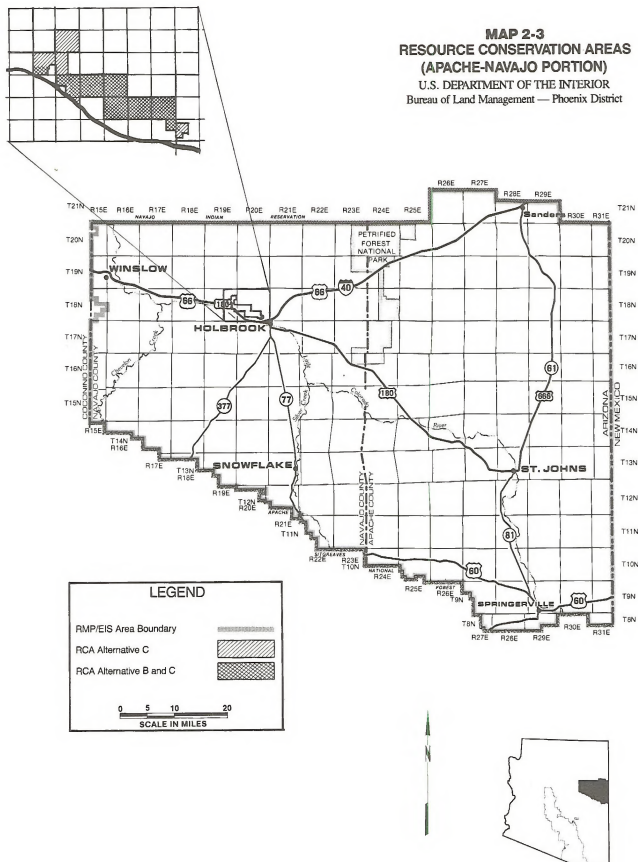
MAP 2-1
RESOURCE CONSERVATION AREAS (RCAs)
(SOUTH CENTRAL PORTION)
 U.S. DEPARTMENT OF THE INTERIOR
 Bureau of Land Management — Phoenix District



MAP 2-2
RESOURCE CONSERVATION AREAS
(NORTH CENTRAL PORTION)
 U.S. DEPARTMENT OF THE INTERIOR
 Bureau of Land Management — Phoenix District

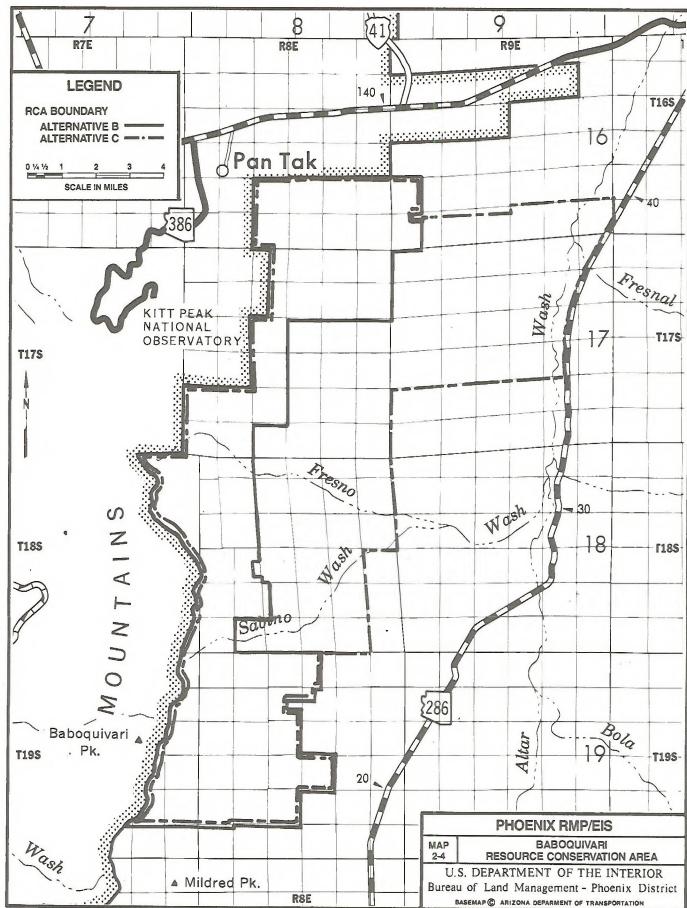


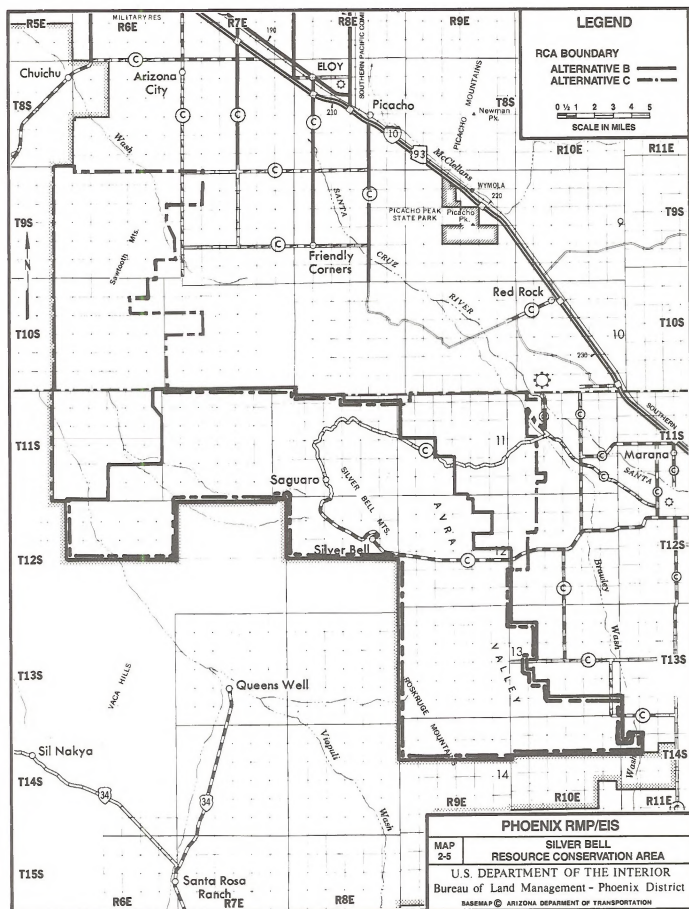
MAP 2-3
RESOURCE CONSERVATION AREAS
(APACHE-NAVAJO PORTION)
 U.S. DEPARTMENT OF THE INTERIOR
 Bureau of Land Management — Phoenix District

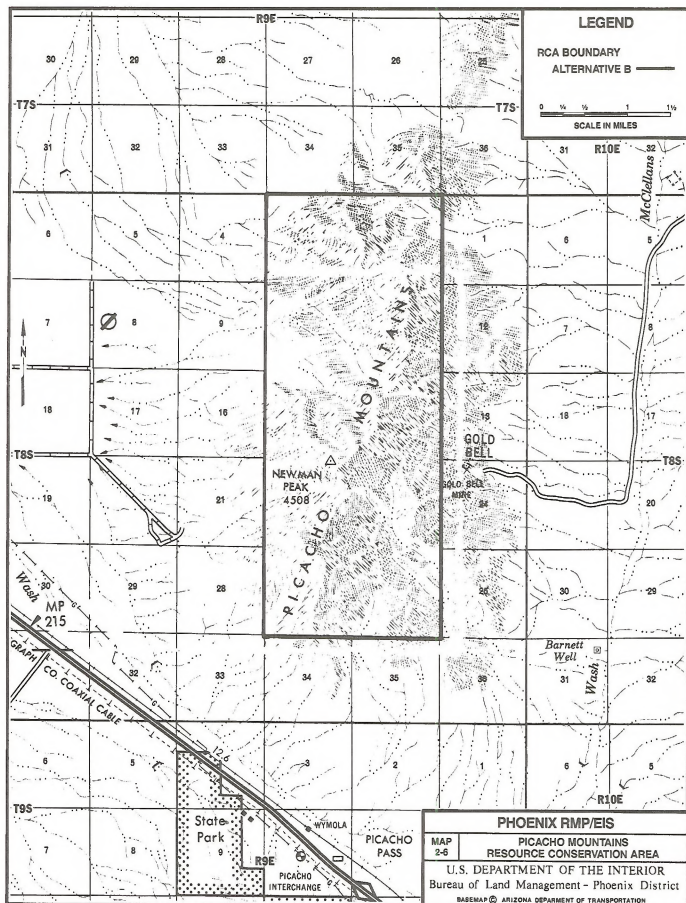


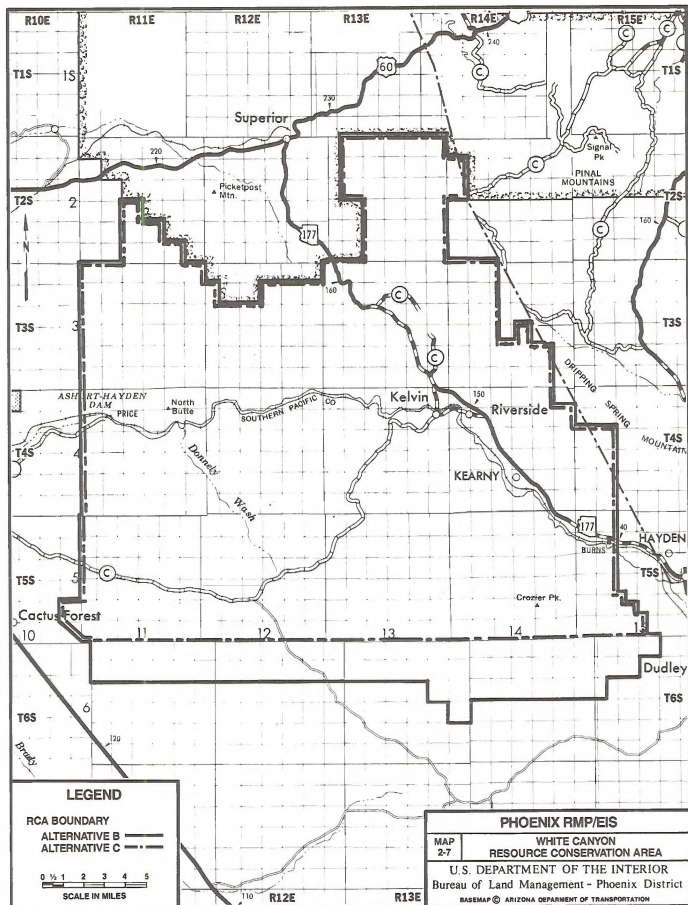
RESOURCE CONSERVATION AREAS (DETAIL MAPS)

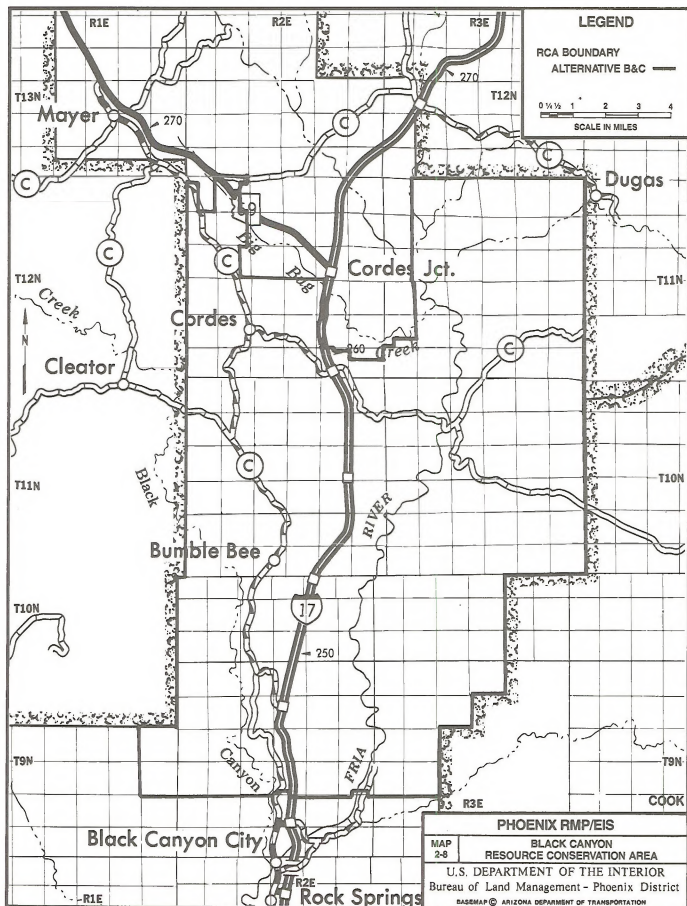
MAP NUMBER	NAME
2-4	BABOQUIVARI
2-5	SILVER BELL
2-6	PICACHO MOUNTAINS
2-7	WHITE CANYON
2-8	BLACK CANYON
2-9	LAKE PLEASANT
2-10	TANNER WASH

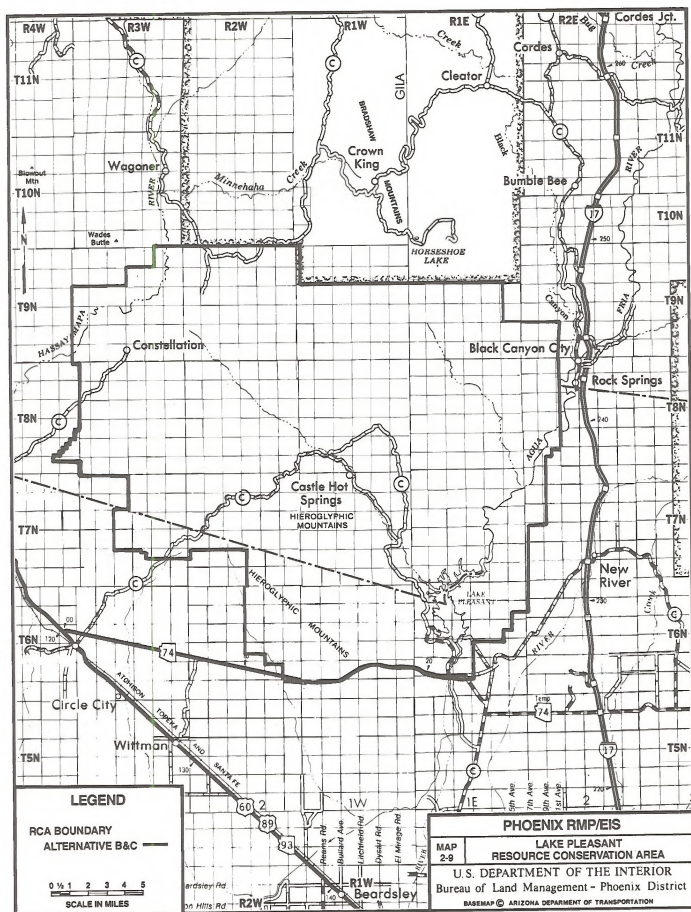


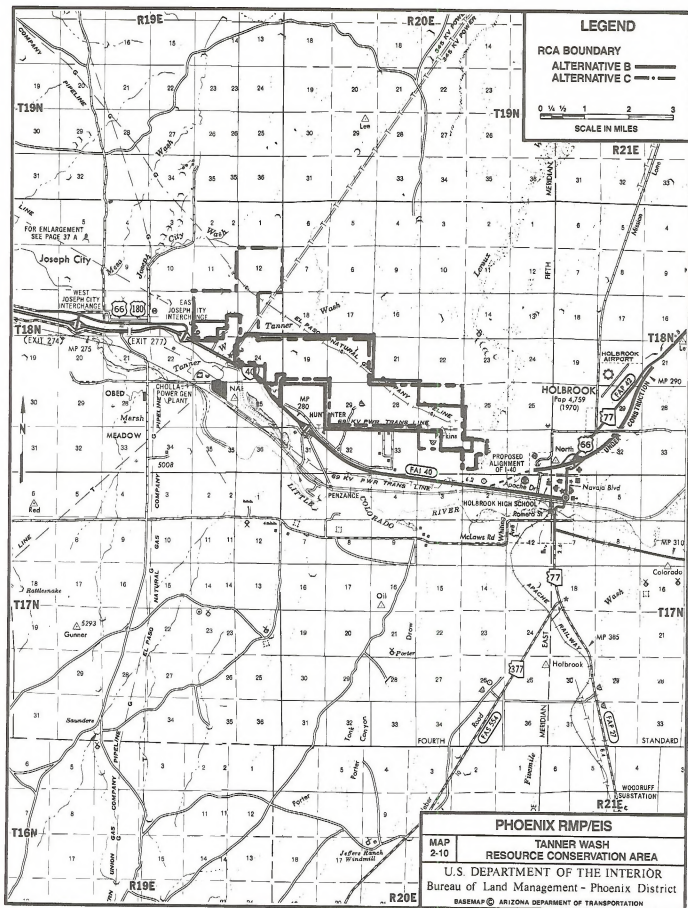






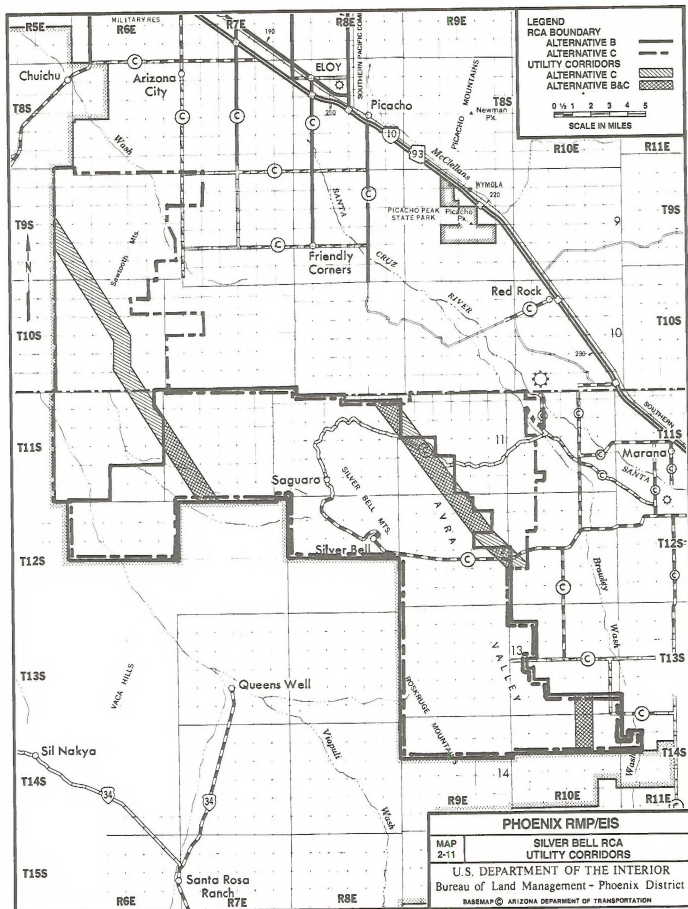


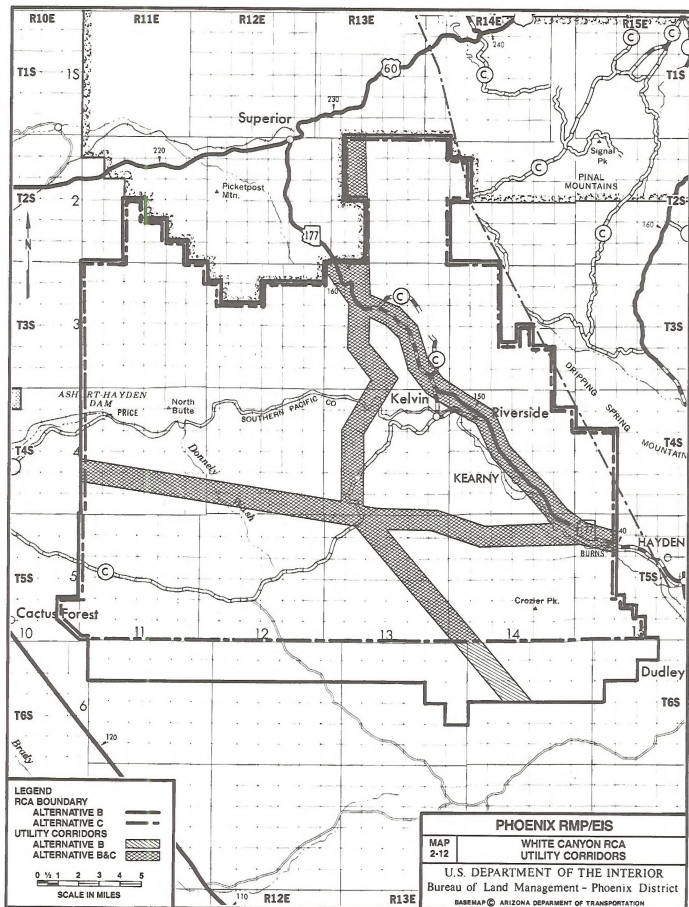


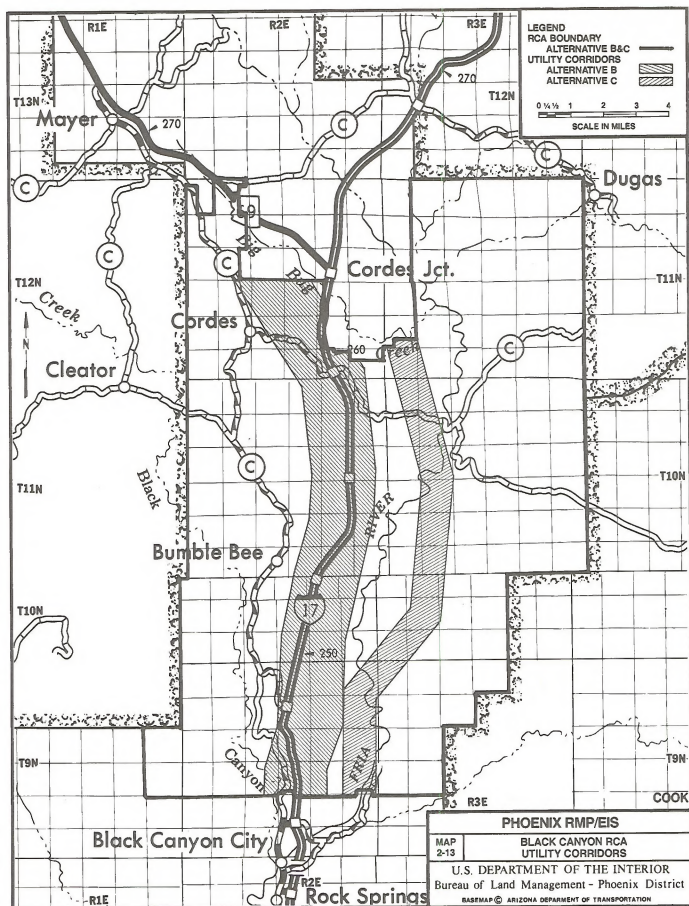


UTILITY CORRIDORS

MAP NUMBER	NAME
2-11	SILVER BELL
2-12	WHITE CANYON
2-13	BLACK CANYON

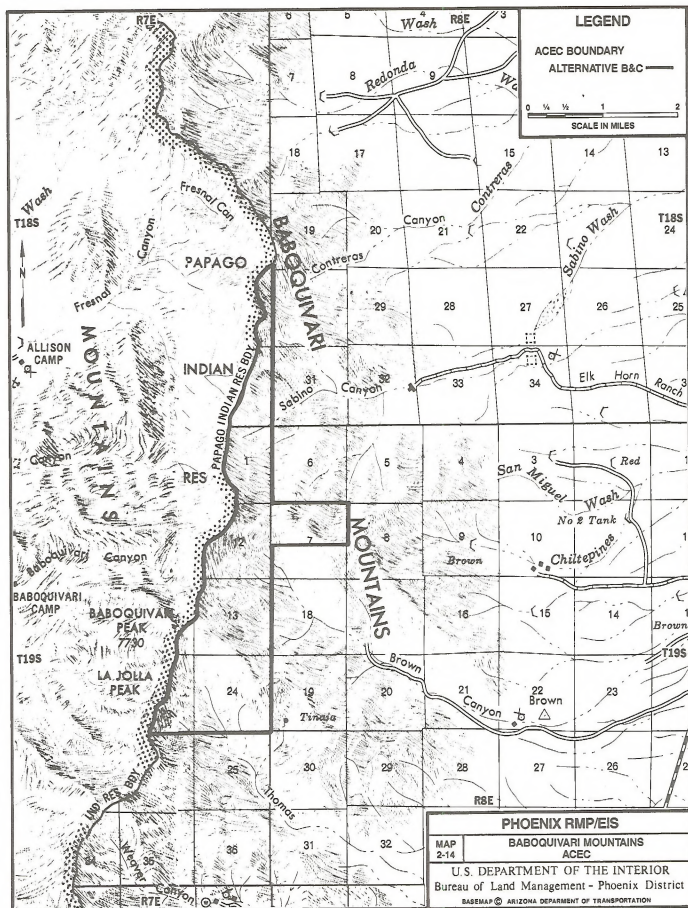


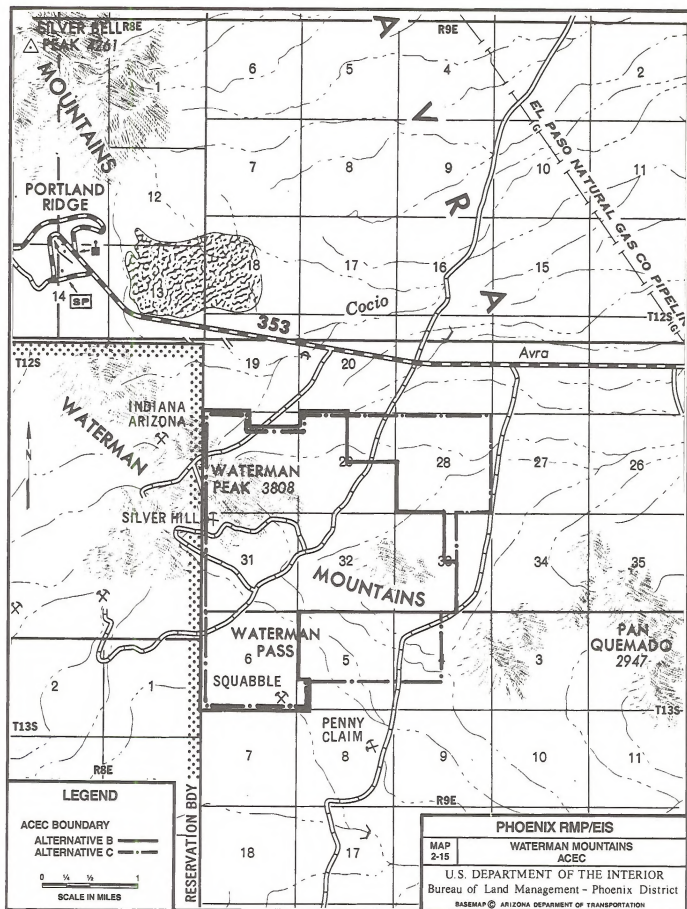




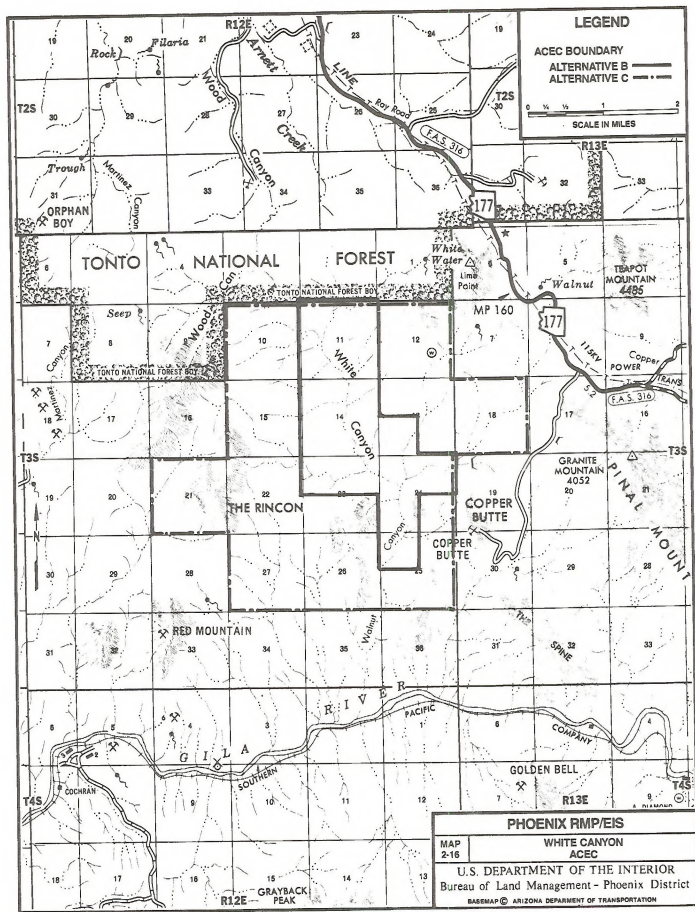
AREAS OF CRITICAL ENVIRONMENTAL CONCERN

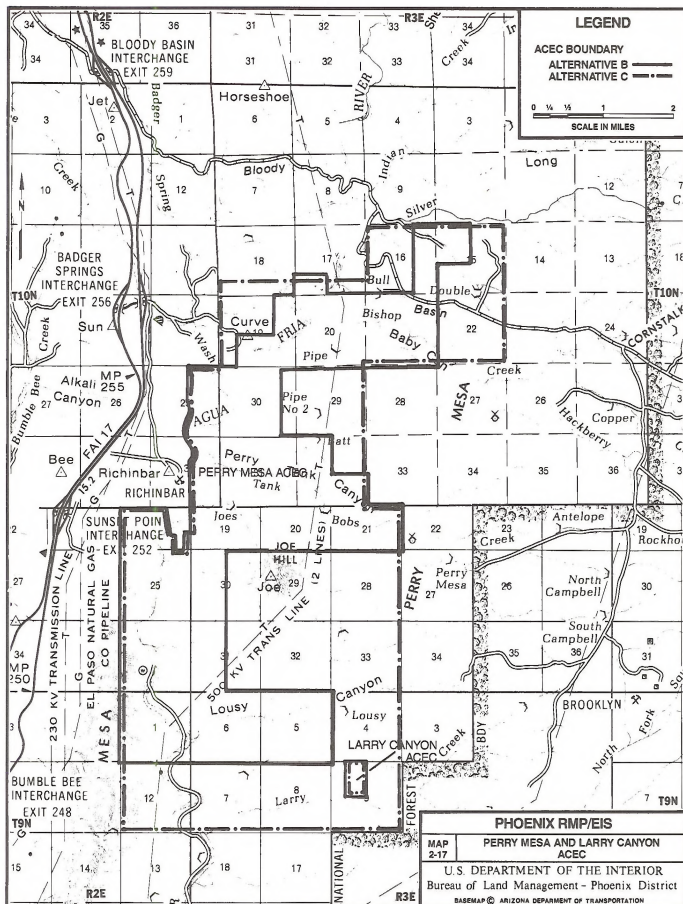
MAP NUMBER	NAME
2-14	BABOQUIVARI MOUNTAINS
2-15	WATERMAN MOUNTAINS
2-16	WHITE CANYON
2-17	PERRY MESA and LARRY CANYON
2-18	TANNER WASH
2-19	APPLETON-WHITTELL

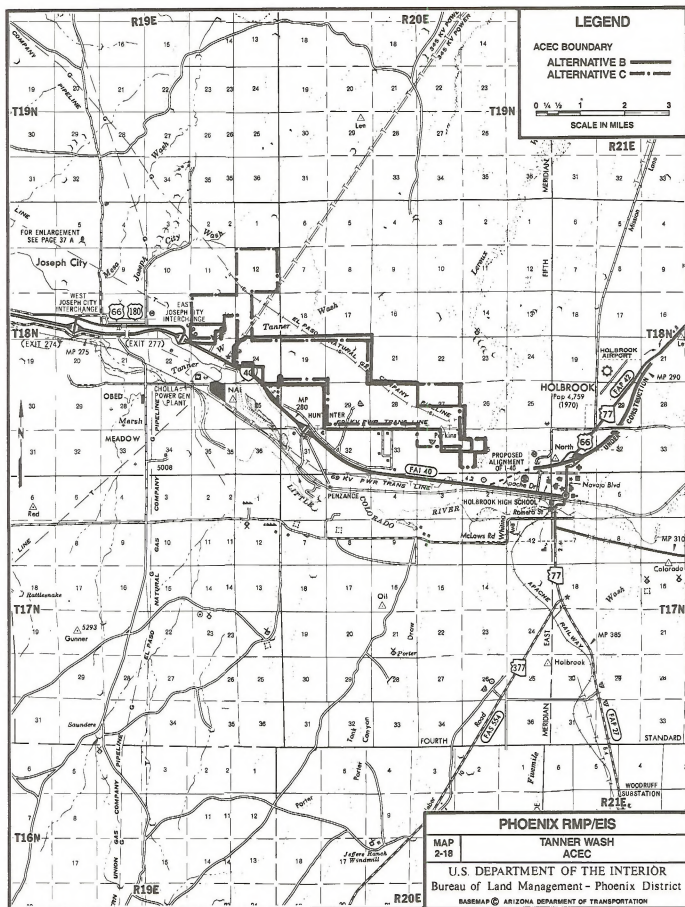


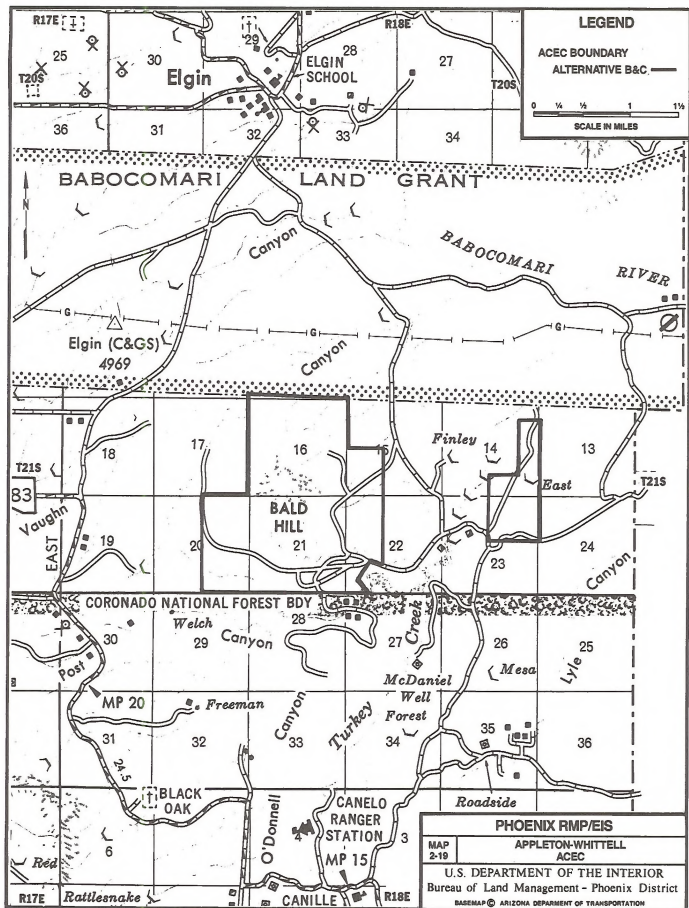


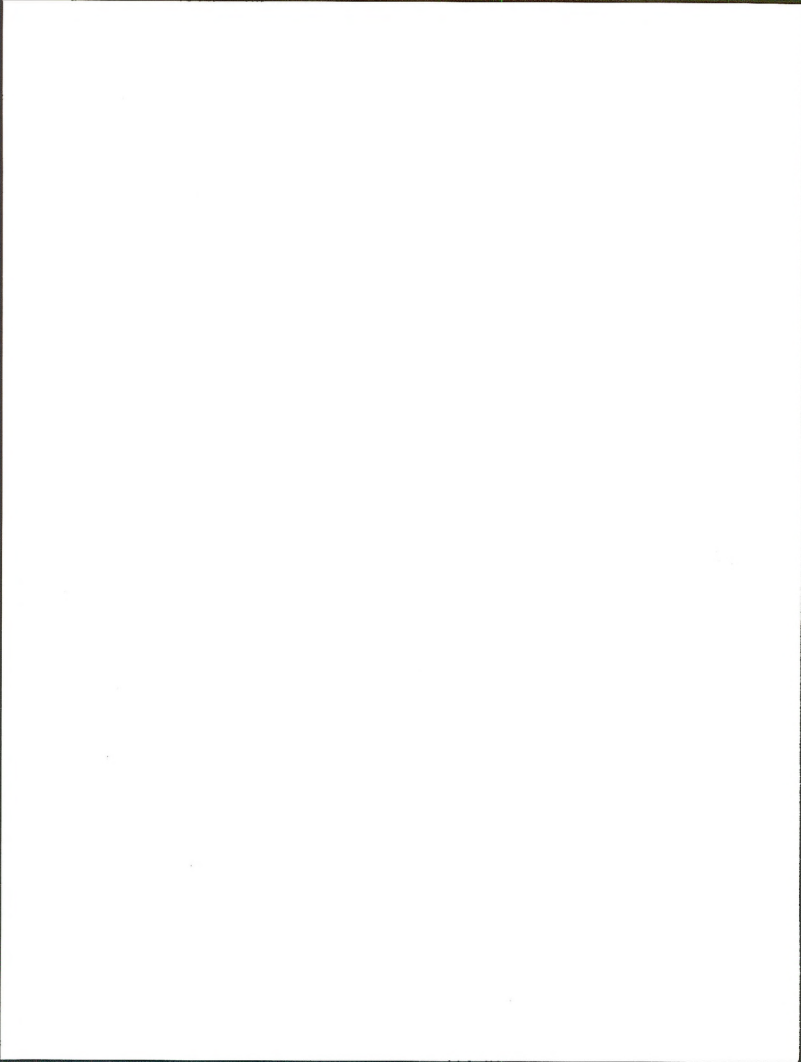
CHAPTER 2 — DESCRIPTION OF ALTERNATIVES





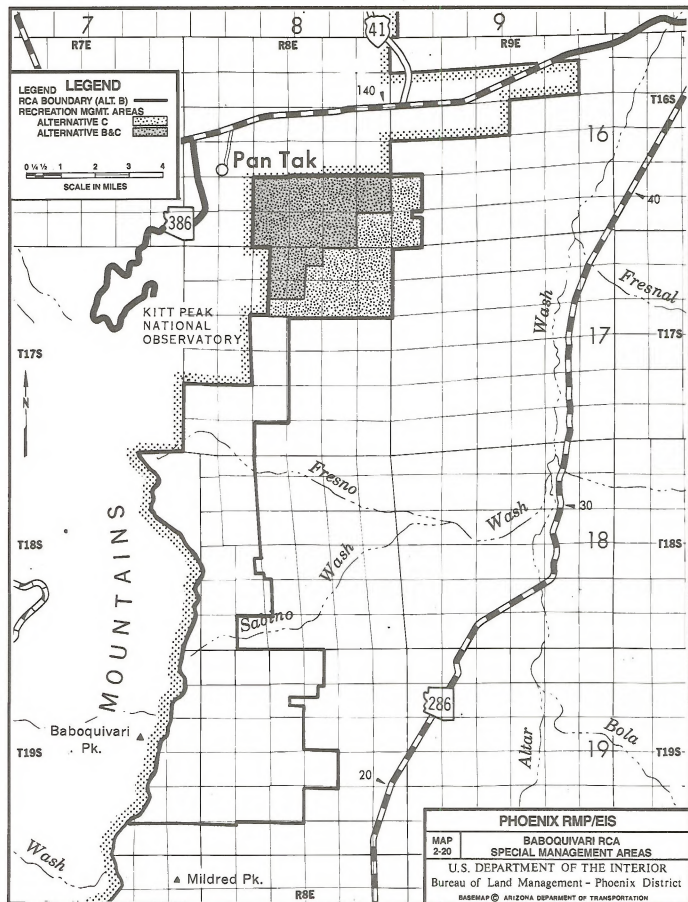




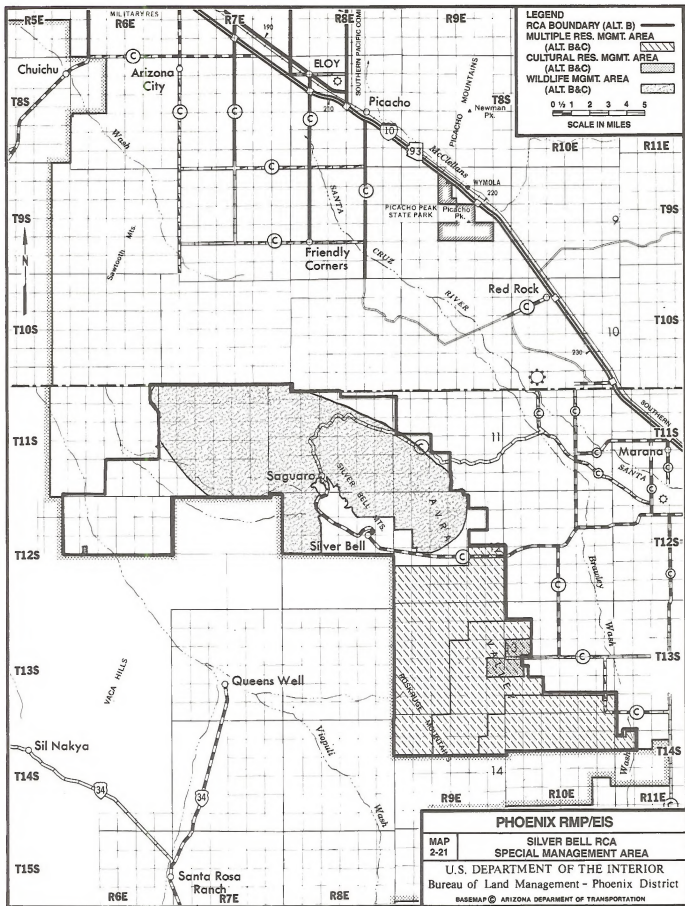


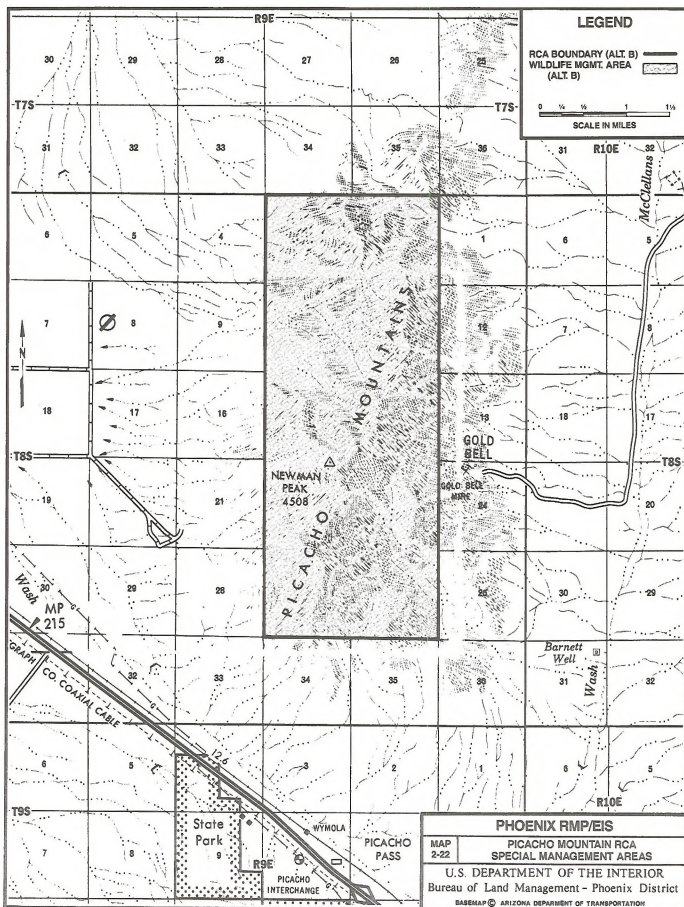
SPECIAL MANAGEMENT AREAS BY RCA

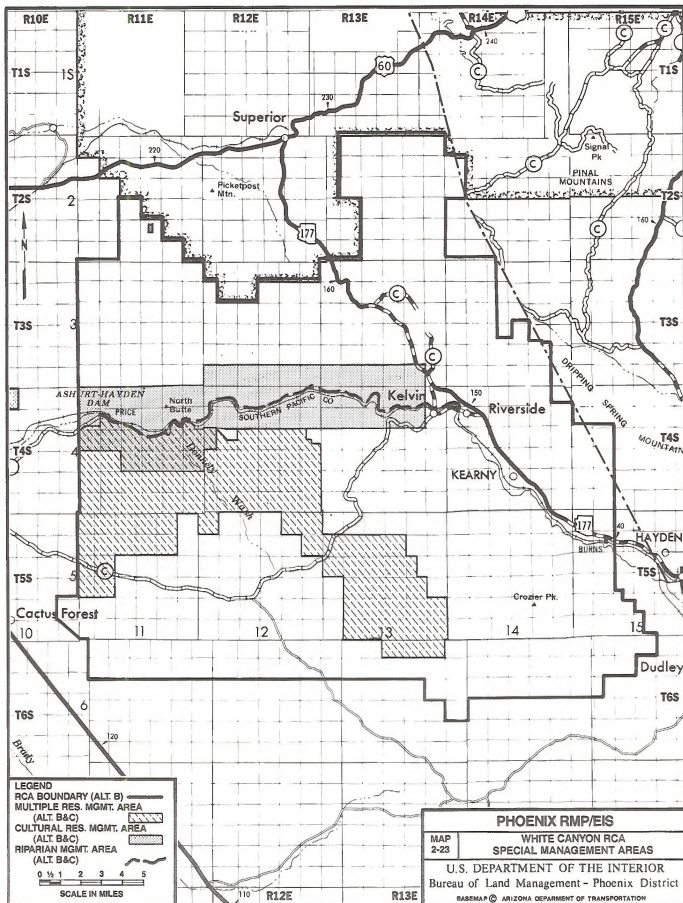
MAP NUMBER	NAME
2-20	BABOQUIVARI
2-21	SILVER BELL
2-22	PICACHO MOUNTAINS
2-23	WHITE CANYON
2-24	BLACK CANYON
2-25	LAKE PLEASANT

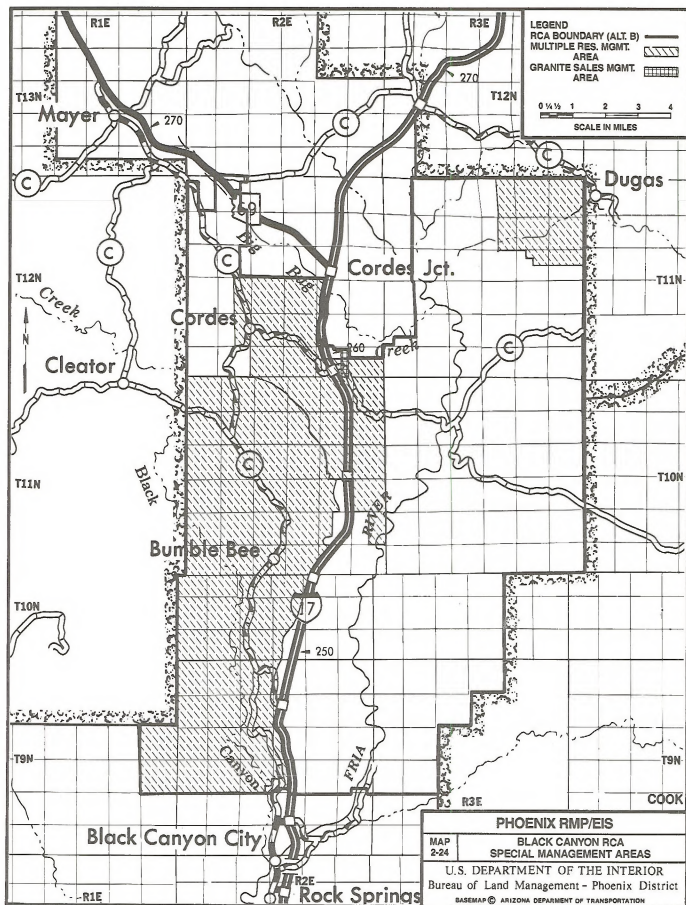


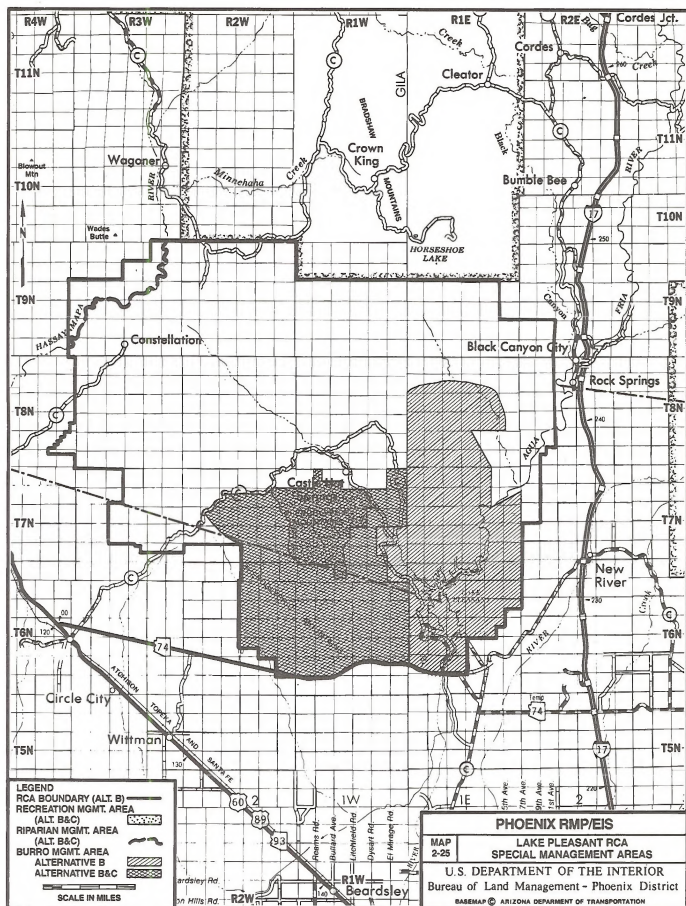
SILVER BELL RCA SPECIAL MANAGEMENT AREA







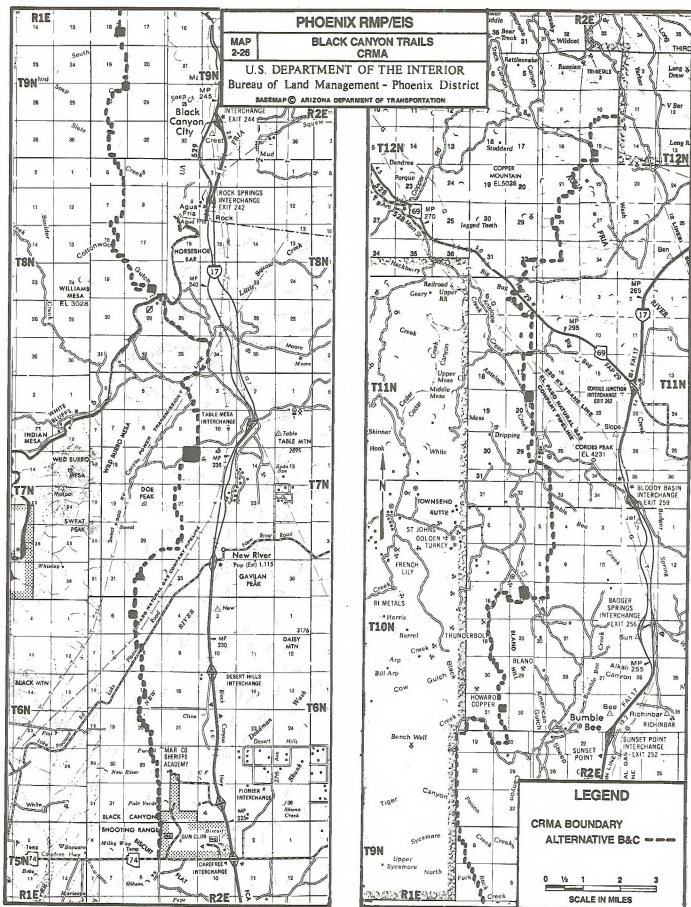


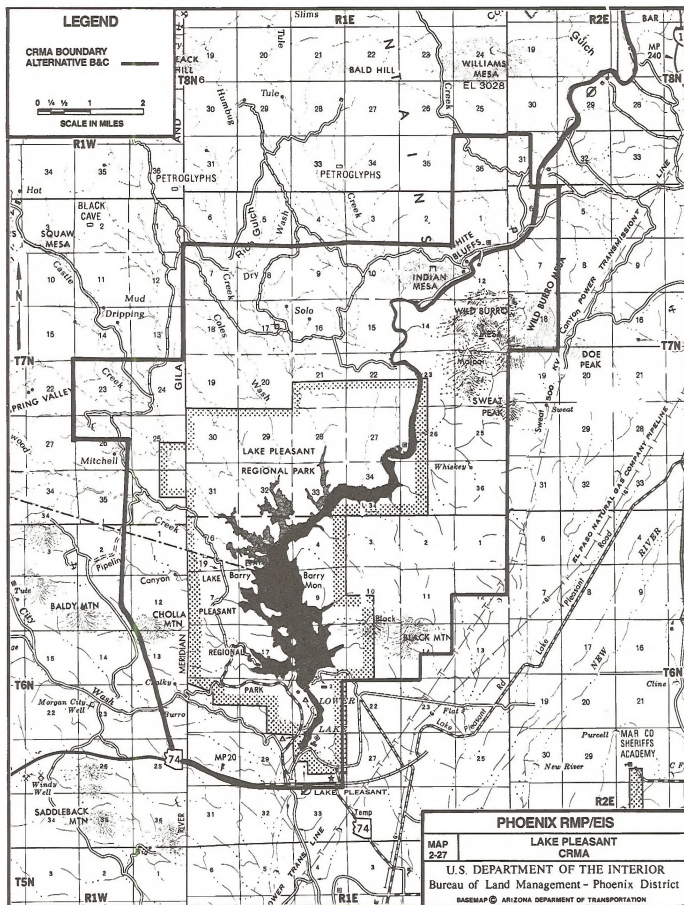




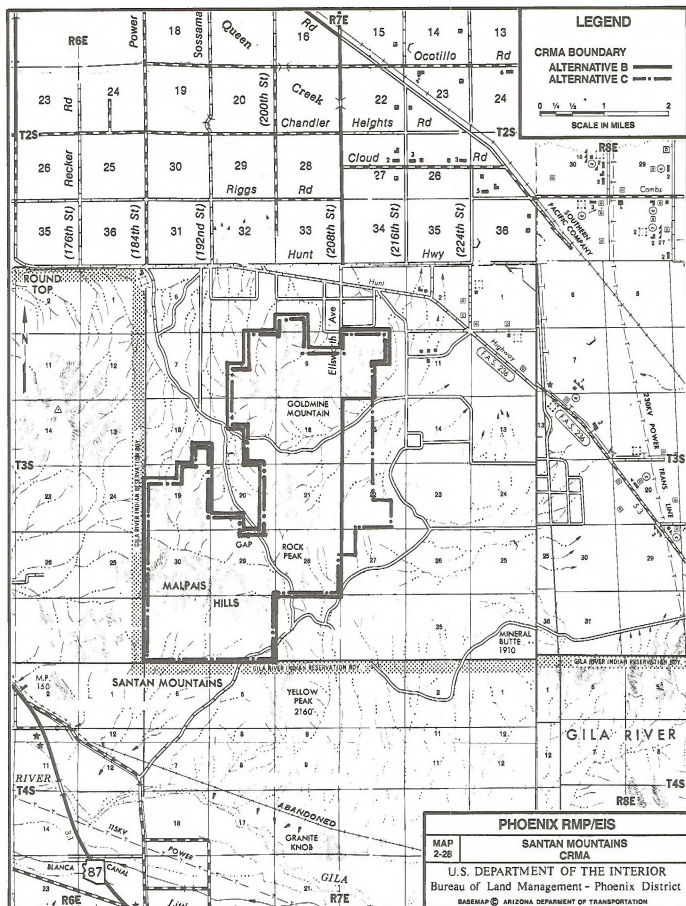
COOPERATIVE RECREATION MANAGEMENT AREAS

MAP NUMBER	NAME
2-26	BLACK CANYON TRAILS
2-27	LAKE PLEASANT
2-28	SAN TAN MOUNTAINS
2-29	TORTOLITA MOUNTAINS
2-30	SAWTOOTH MOUNTAINS
2-31	PICACHO MOUNTAINS

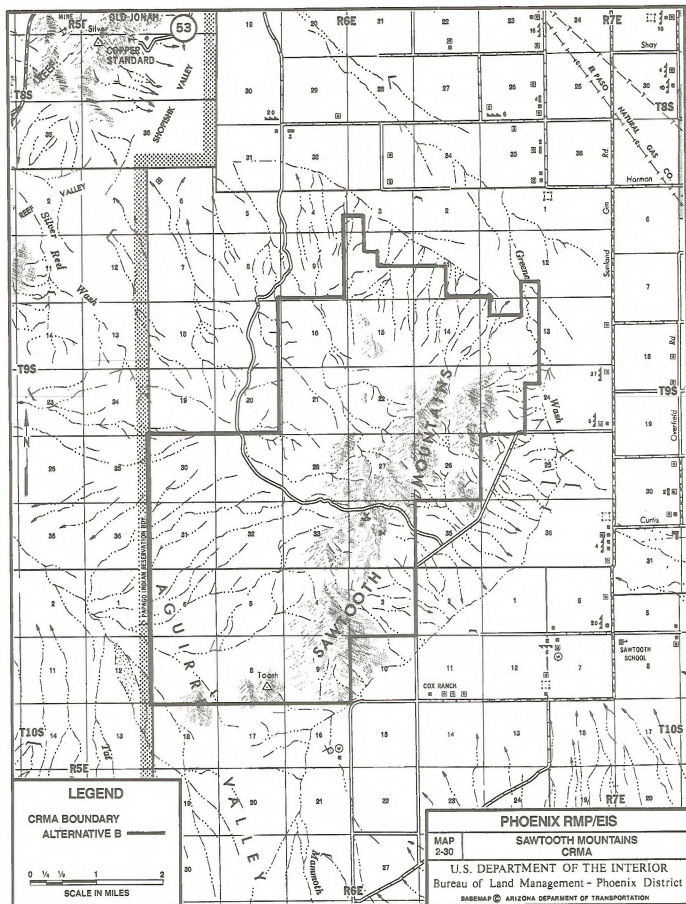


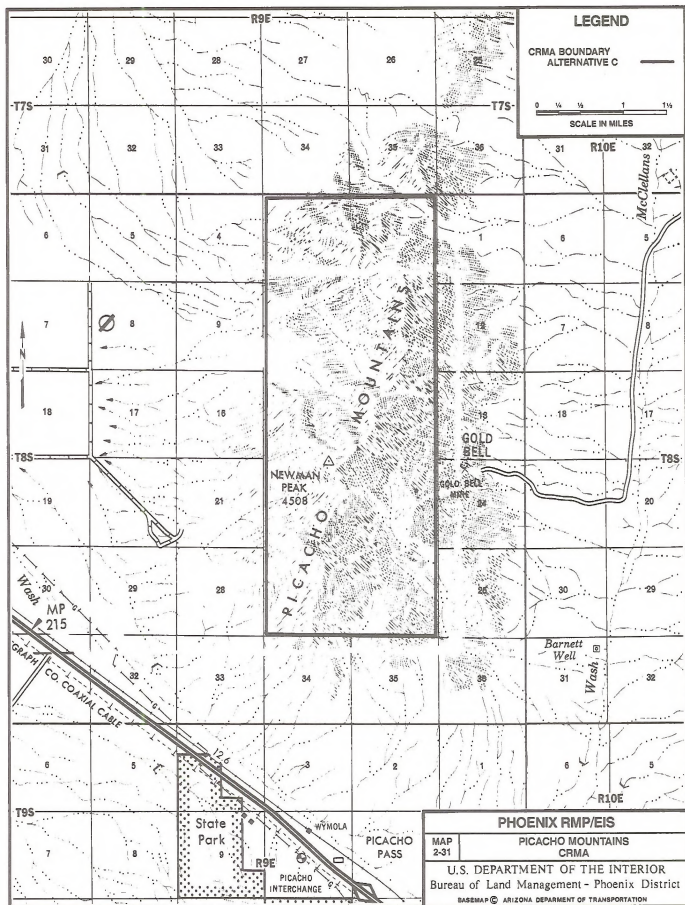


CHAPTER 2 — DESCRIPTION OF ALTERNATIVES





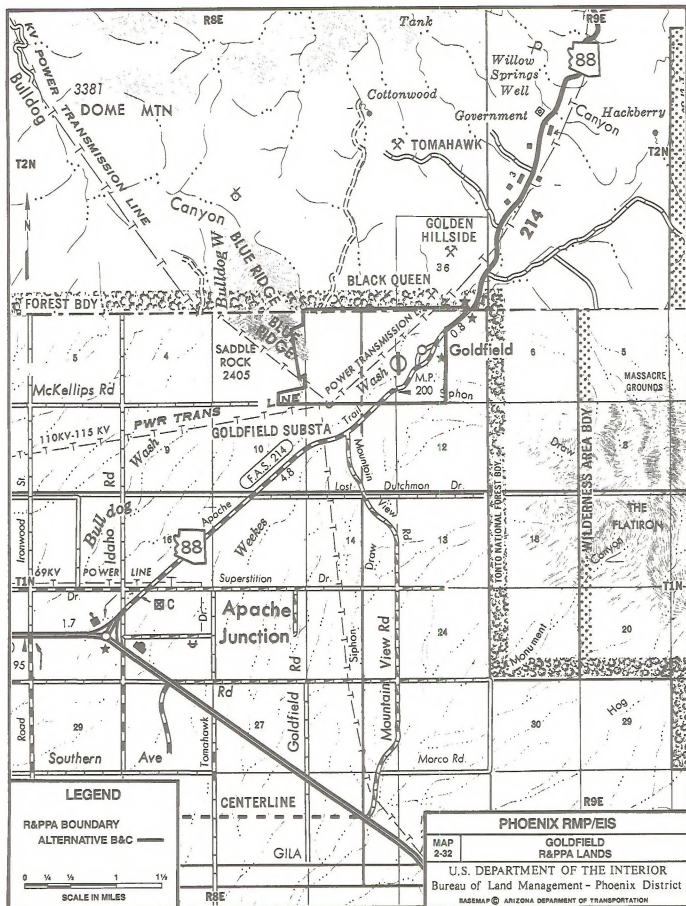


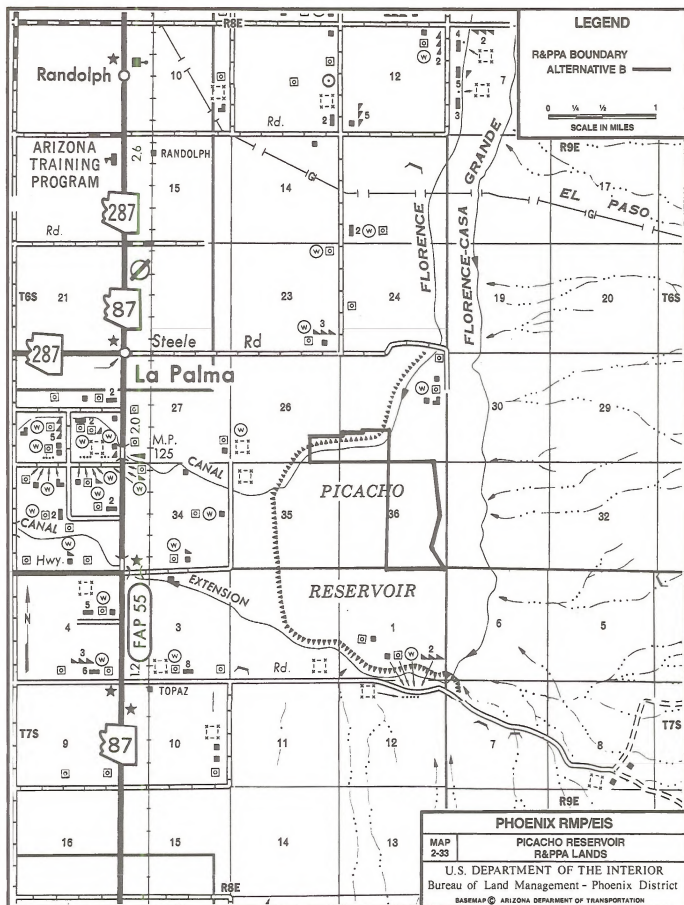


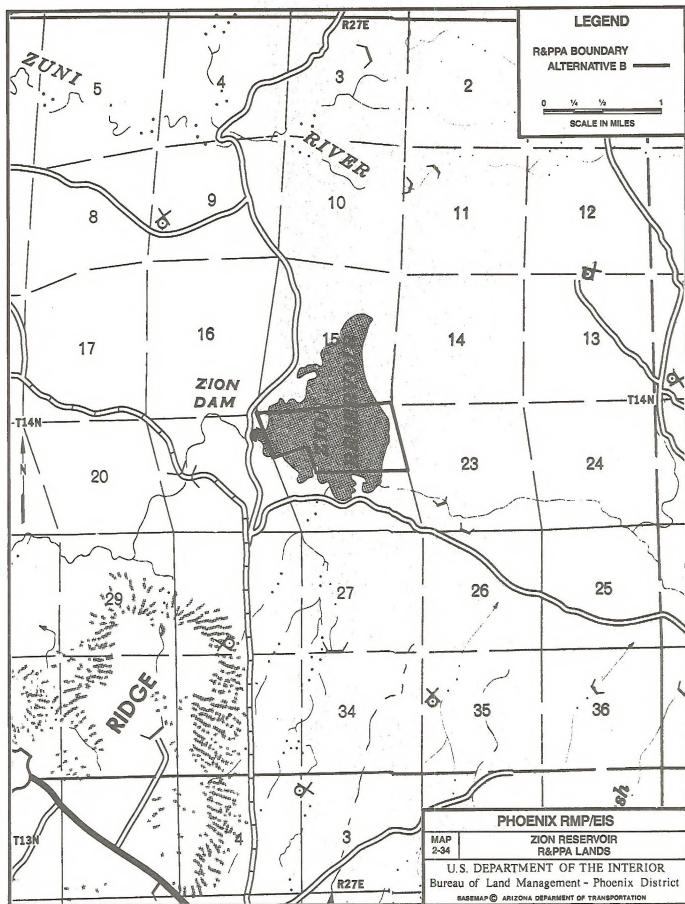


RECREATION & PUBLIC PURPOSE LANDS

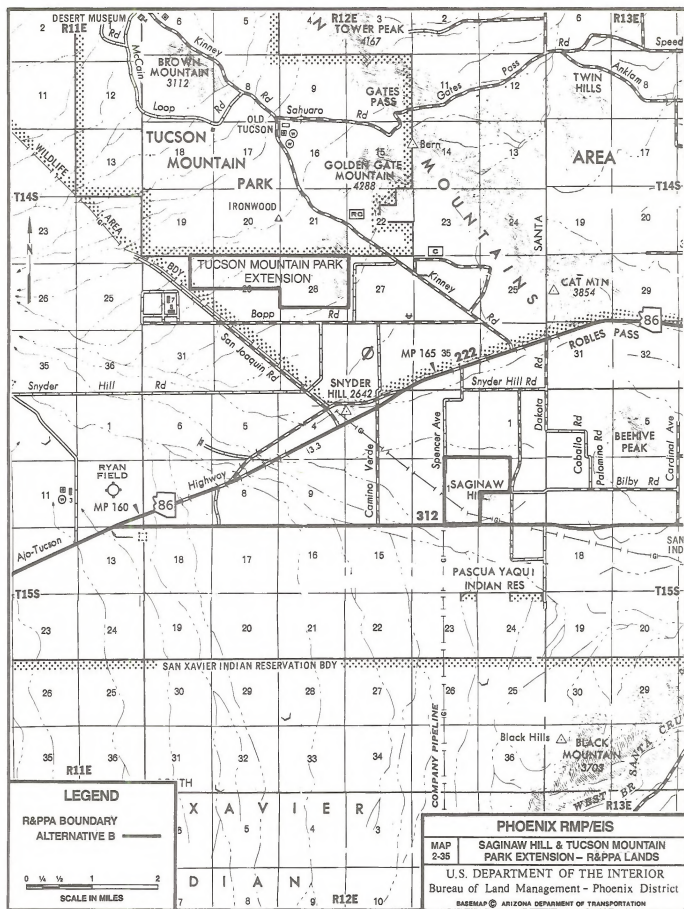
MAP NUMBER	NAME
2-32	GOLDFIELD
2-33	PICACHO RESERVOIR
2-34	ZION RESERVOIR
2-35	SAGINAW HILL & TUCSON MOUNTAIN PARK EXTENSION
2-36	TORTOLITA MOUNTAINS







SAGINAW HILLS AND TUSCON MOUNTAIN PARK EXTENSION — R&PP LANDS



AFFECTED ENVIRONMENT 3





CHAPTER 3

AFFECTED ENVIRONMENT

LAND USES

LAND OWNERSHIP

The Phoenix Resource Area is divided into two distinct geographic regions. The northern region encompasses about 228,700 acres of scattered public land lying north of the Sitgreaves National Forest and south of the Navajo Indian Reservation in Navajo and Apache counties. The southern portion of the resource area encompasses 682,640 acres of scattered public land in the central and south central portion of Arizona. This southern area includes some 75 percent of the state's 2.7 million people and the major metropolitan areas of Phoenix and Tucson. The public land pattern in the resource area is about 20 percent blocked, 40 percent checkerboard and 40 percent scattered.

Table 3-1 shows the acres of federal land and minerals administered by the BLM in the Phoenix RMP area.

Acres are shown by county for each of five categories of ownership to which this RMP applies: federal surface/federal minerals (subsurface), federal surface/state minerals, federal surface/private minerals, state surface/federal minerals and private surface/federal minerals.

A distinction is made between surface and minerals ownership as certain federal regulations apply only to federal surface and subsurface ownership.

LAND AVAILABLE FOR RECREATION AND OTHER PUBLIC PURPOSES

Over the years numerous local government entities and nonprofit organizations have acquired federal land, at little or no cost, under the *Recreation and Public Purposes Act of 1926* (R&PPA). Either by lease or patent (deed) this land has been dedicated to mostly recreation uses which benefit the public at large. Tables 3-2 and 3-3 provide a breakdown by county of the total number of acres leased or patented under the R&PPA and the uses in acres by county.

RIGHT-OF-WAY DEVELOPMENT

The BLM is responsible for legally authorizing uses on public land, and grants various use authorizations such as rights-of-way, use permits and leases. Land uses on public land include roads, major transmission lines, apiary sites, telephone lines, pipelines, communication sites, electric power substations and power distribution lines. Much of the demand for land use authorizations is related to residential and industrial development. Land use authorizations are currently processed by the BLM on a case-by-case basis as the need occurs. The authorization process involves an environmental assessment report or EIS and resource protection stipulations before authorizations are granted.

Currently nine communication sites are within the RMP area (Table 3-4).

TABLE 3-1
Public Land Acres by County (Surface and Mineral Ownership)
Bureau of Land Management, Phoenix District, Arizona

County	Fed. Surface Fed. Minerals	Fed. Surface State Minerals	Fed. Surface Priv. Minerals	State Surface Fed. Minerals	Priv. Surface Fed. Minerals
Apache	129,670	0	4,227	32,326	59,245
Gila	6,115	0	0	120	3,040
Maricopa	76,088	1,237	0	55,967	113,439
Navajo	93,050	1,760	0	16,699	45,081
Pima	160,975	240	240	55,923	345,389
Pinal	263,725	720	0	188,213	142,916
Santa Cruz	2,841	0	0	1,800	29,895
Yavapai	170,294	111	50	78,644	70,601
TOTAL	902,758	4,068	4,517	429,692	809,806

Source: Phoenix District files.

TABLE 3-2
R&PP Acres by County
Bureau of Land Management, Phoenix District, Arizona

Use	Apache	Gila	Maricopa	Navajo	Pima	Pinal	Santa Cruz	Yavapai
Schools		39	362		717	332	42	146
Parks	1,088		88,166		10,996	6,151		1,555
Landfills	40		259	638			40	40
Cemetery								12
Rifle/Archery								
Ranges			298		1,281			
Miscellaneous*			584		990	394	7	8
TOTAL ACRES	1,128	39	89,669	638	13,984	6,877	89	1,761

Source: Phoenix District files.

*Miscellaneous includes parking areas, rodeo arenas, medical and fire training facilities, gliderports, air museums, government offices, community offices, community clubs and well sites.

TABLE 3-3
R&PP Lease and Patent Acres by County
Bureau of Land Management, Phoenix District, Arizona

Use	Apache	Gila	Maricopa	Navajo	Pima	Pinal	Santa Cruz	Yavapai	Total Acres
R&PP Leases	860	0	1,777	0	983	2,303	89	807	6,819
R&PP Patents	268	39	87,892	638	13,001	4,574		954	107,366
TOTAL ACRES	1,128	39	89,669	638	13,984	6,877	89	1,761	114,185

Source: Phoenix District files.

TABLE 3-4
Existing Communication Sites
Bureau of Land Management, Phoenix District, Arizona

Communication Site	Location	Communication Site	Location
White Tanks	T. 3 N., R. 3 W.	Black Canyon	T. 8 N., R. 2 E.
Newman Peak	T. 8 N., R. 9 W.	Kelvin Site	T. 4 S., R. 13 E.
Silver Bell	T. 11 S., R. 8 E.		
Silver Bell	T. 11 S., R. 9 E.		
Helmet Peak	T. 17 S., R. 12 E.		
Keystone Peak	T. 18 S., R. 11 E.		
Silly Mountain	T. 1 N., R. 8 E.		
		Vortac Site	Location
		St. Johns	T. 12 N., R. 30 E.
		Sky Harbor	T. 1 N., R. 4 E.

Source: Phoenix District files.

In addition, two locations on public land are being utilized as aviation Vortac Stations.

The Newman Peak site is within the Picacho Mountains Wilderness Study Area (WSA). Existing facilities are temporary and conform with the criteria set forth in the BLM's *Wilderness Interim Management Policy* (IMP). All facilities would be dismantled and removed from the site if Congress designates the area as wilderness.

Major linear transportation and utility facilities have formed a utility network in the RMP area. Currently 12 major utility routes and three major interstate highways have been designated as corridors in BLM Management Framework Plans for the RMP area (BLM 1974, 1976) (Table 3-5).

TABLE 3-5
Existing Utility Corridors
Bureau of Land Management,
Phoenix District, Arizona

MFP Planning Area	Number of Corridors
Middle Gila	7
Silver Bell	4
Black Canyon	1
Apache-Navajo	0
TOTAL	12

Source: Phoenix District files.

These designated corridors are one mile in width and provide routes for multiple transmission facilities, thus minimizing adverse environmental

impacts and reducing the proliferation of separate rights-of-way. All major transmission facilities are currently restricted to those corridors as preferred routes.

PAYMENTS IN LIEU OF TAXES (PILT)

The 1976 *Payments In Lieu of Taxes (PILT) Act* provides money to county governments for certain public land in that county. Through the Secretary of the Interior, the BLM has been delegated the responsibility of administering the act, also known as *Public Law 94-565*. The payments are designed to supplement other federal receipt sharing funds that local governments may be receiving. In addition, the PILT Act as amended provides for payments to units of local government to compensate for the loss of property tax revenue on tax exempt federal land. Payments received under the act may be used by the recipients for any governmental purpose and are based on the number of acres of "entitlement land" within the county. Entitlement land consists of land administered by the National Forest System, National Park System, Bureau of Land Management and land dedicated to the use of federal water resource development projects. Table 3-6 shows entitlement acres and "In Lieu" payments over the past three years to each county in the RMP area.

The act specifically prohibits payments for tax exempt land acquired from state or local governments, but does authorize payments for any land which was acquired after December 31, 1970 as additions to the National Park System or National Forest Wilderness Areas.

TABLE 3-6
Payments in Lieu of Taxes (PILT)
Bureau of Land Management, Phoenix District, Arizona

County	*Entitlement Acres	Payments (\$)		Average Payment (\$)
		1984	1985	
Apache	680,893	451,058	392,167	245,399
Gila	1,774,173	661,583	722,134	877,725
Maricopa	2,399,462	874,774	910,892	887,410
Navajo	597,547	306,176	244,787	70,866
Pima	1,613,245	917,672	932,136	927,163
Pinal	569,518	419,455	393,016	386,068
Santa Cruz	419,850	255,693	305,813	302,418
Yavapai	2,413,636	791,138	739,917	605,339
TOTAL	10,468,324	4,677,549	4,640,862	4,102,388
				4,473,600

*Entitlement acres include public land, Forest Service land, National Parks and land needed for water development projects.

Source: Phoenix District files.

LOCATABLE MINERAL DEVELOPMENT

Mineral exploration for, and development of, deposits of the locatable minerals copper, lead, zinc, molybdenum, manganese, gold and silver have played a major historical role in the growth of Arizona. Of these commodities, copper development has had the greatest impact, contributing 80 percent of the total mineral revenues for the state in 1969 (Forrester 1969). From copper to lithium, all of these mineral commodities have been mined within the RMP area and further exploration development is expected.

Historically, mineral production in each of the 71 mineral districts in the RMP area has been highly variable (see Table 3-7). Early mining in these districts was focused upon deposits of high grade lode ores and placers. Exploration was limited—mostly confined to prospecting on the surface. Through time the focus of mining has shifted to the large-scale development of low-grade copper porphyry bodies, development of which accounts for most of the base metal production in the RMP area and the state. Nine of the 71 districts in the RMP area produced 99 percent of the total production from all districts in 1981 (Keith et al., 1983).

TABLE 3-7
Base Metal Production by Mineral District
Bureau of Land Management, Phoenix District, Arizona

District Name	Base Metal Production in Tons	District Name	Base Metal Production in Tons
Agua Fria	160,000	Mineral Hill	178,000
Amado	1,800	Mineral Mountain	1,200
Amole	10,000	Mineral Point	1,200
Antelope	1,000	Minnehaha	1,000
Big Bug	6,200,000	New River	34,000
Black Canyon	265,000	North Star	4,000
Black Rock	80,000	Oceanic	1,500
Bradford	300	Owl Head	1,600
Casa Grande	28,988,000	Papago	4,600
Castle Creek	2,500	Picacho	100
Cave Creek	1,500	Pikes Peak	2,400
Cerro Colorado	4,600	Pima	978,753,000
Copper Butte	156,000	Pioneer Alabama	26,280,000
Cottonwood	700	Prescott	300
Coyote	1,000	Queen Sabe	18,000
Cuprite	2,500	Red Hills	100
Dripping Springs	9,500	Red Picacho	4,400
Durham Suizo	6,000	Relief	8,000
Empire	17,000	Richinbar	32,000
Globe Hills	12,133,000	Rincon	200
Goldfield	23,000	Ripsey	10,000
Grand Prize	400	Riverside	5,800
Hardly Able	2,000	Roskrige	300
Helvitia Rosemont	443,000	Saginaw Hill	13,600
Humbug	4,200	Salero	19,000
Kay	2,600	Salt River Mountains	15,000
Keystone	200	San Domingo	500
Las Guijas	1,800	Silver Bell	90,351,000
Little Hills	827,000	Silver Mountain	50
Magonigal	300	Tconderoga	336,000
Martinez Canyon	24,000	Tip Top	28,000
McDowell	100	Waterman	30,000
Miami Inspiration	759,476,000	Winfred	8,000
Mildred Peak	5,300	Woolley	100
Mineral Butte	300	Yarber Wash	600
Mineral Creek	327,507,000		

Source: Metallic Mineral Districts and Production in Arizona. Arizona Bureau of Geology and Mineral Technology Bulletin 194, 1983 (Keith et al.).

Large and small-scale mining operations on public land require either a notice or a mining plan of operation (MPO). Notices are for operations of five acres or less and MPOs are for larger operations. Table 3-8 summarizes the MPOs and notices for the RMP area between 1981 and 1987.

the Bradshaw Mountains, in the White Canyon area and south and west of Tucson. Placer mining is of particular interest to the small and moderately sized operations in the RMP area. Current gold prices have expanded the margin of profitability. Overall, development of a placer mine is less expensive than lode

TABLE 3-8
MPOs and Notices for the RMP Area
January 1981 to July 1987
Bureau of Land Management, Phoenix District, Arizona

	1981	1982	1983	1984	1985	1986	1987	Totals
Notices	54	21	39	30	31	35	25	235
MPOs	1	2	1	2	2	2	2	10
Commodity								
Gold	8	8	14	7	14	18	8	77
Limestone		1	1			1		3
Copper				1		1		2
Feldspar			1					1
Other	1	1		3		6	4	15
Tungsten	1							1
Uranium			1					1
Unknown	45	13	23	21	19	11	13	145
TOTAL	55	23	40	32	33	37	25	245
Mine Type								
Access		2	2	1	3	1	2	11
Exploratory	32	8	20	18	15	12	10	115
Lode	11	2	7	5		2	3	30
Leach	1	1		1	2			5
Mill			1			2		3
Other		1		2		4	3	10
Quarry	1	1	1			1	1	5
Placer	6	7	8	4	12	14	6	57
Unknown	4	1	1	1	1	1		9
TOTAL	55	23	40	32	33	37	25	245
File Status								
Open	32	16	26	29	26	29	25	
Closed	23	7	14	3	7	8	0	

Source: Phoenix District files.

Maps 3-1a, 3-1b and 3-1c depict the level of mineral activity throughout the planning area. Contour lines shown superimposed upon the planning area base map show the density of operations per township in a given area. This gives a qualification of those areas currently of highest interest in the mining community.

The largest developed mines in the RMP area are on patented land. Most development activity on unpatented public land within the RMP area is confined to smaller scale operations. However, exploration drilling on public land by corporate interests continues periodically in areas around the flanks of

mine development. Placer development activity is expected to continue and slowly expand with a continued rise in the price of gold.

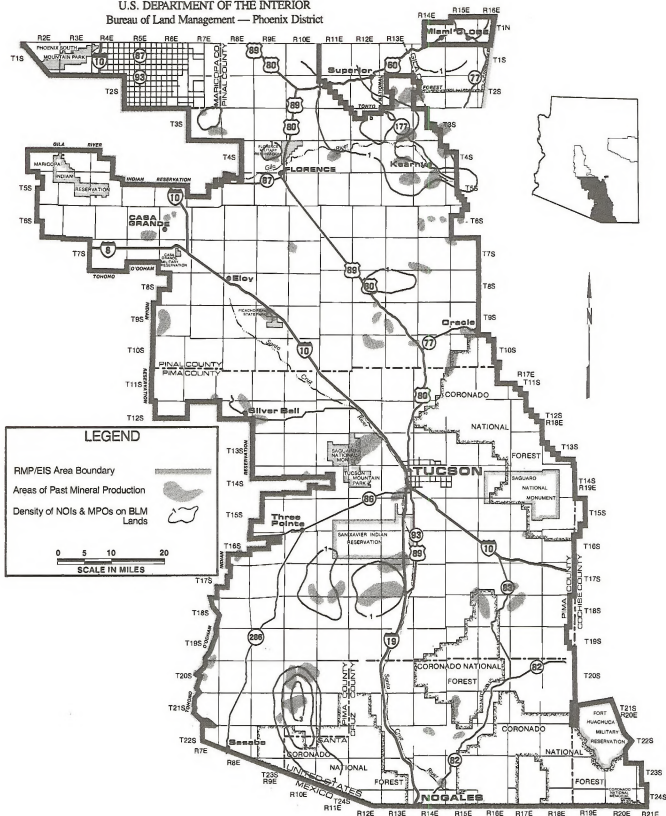
The rise in gold prices, declines in fuel costs and improvement in mine technologies have increased the profitability of mining deposits of highly disseminated low grade gold deposits. Gold production and exploration is expected to continue at current levels.

Copper prices have dropped sharply over the last ten years. Production continues from the largest mines in the RMP area but development of new, large-scale, copper deposits is not expected in the near future. Currently, exploration programs are in place,

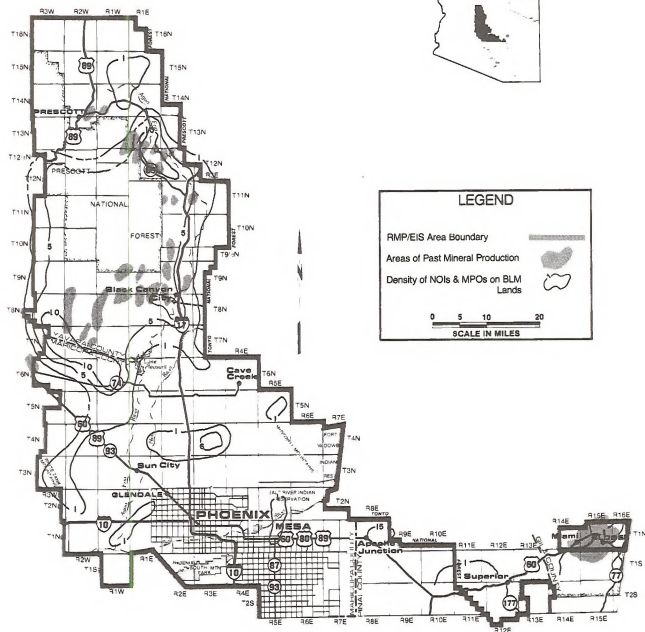
MAP 3-1A
RMP AREA MINERAL DISTRICTS
(SOUTH CENTRAL PORTION)

U.S. DEPARTMENT OF THE INTERIOR

Bureau of Land Management — Phoenix District

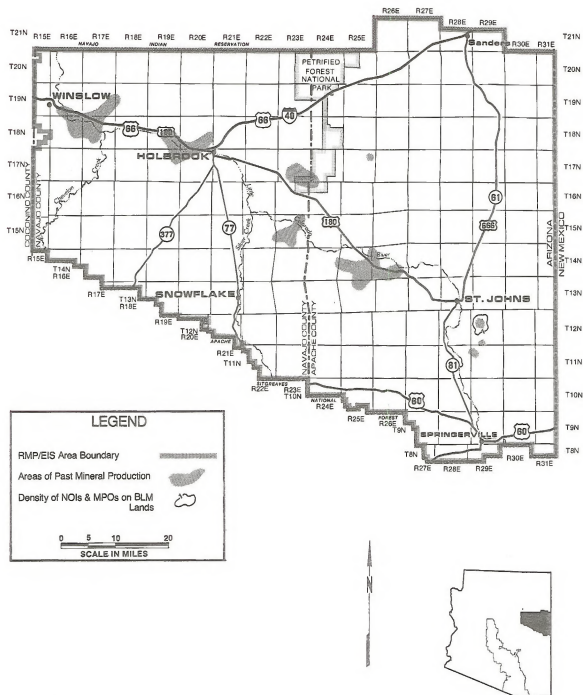


MAP 3-1B
RMP AREA MINERAL DISTRICTS
(NORTH CENTRAL PORTION)
 U.S. DEPARTMENT OF THE INTERIOR
 Bureau of Land Management — Phoenix District



SOURCE: Keith et al; 1984

MAP 3-1C
RMP AREA MINERAL DISTRICTS
(APACHE-NAVAJO PORTION)
 U.S. DEPARTMENT OF THE INTERIOR
 Bureau of Land Management — Phoenix District



SOURCE: Keith et al; 1984

or are expected, in the White Canyon area and to the southwest along the eastern flanks of the Waterman Mountains. Large open-pit operations will be required for the extraction of minerals from sulfide ore bodies. However, in-place leaching of oxide ores may be employed to a greater extent in the future. This method limits surface disturbance and can be more economical than traditional methods involving the removal of large volumes of overburden and ore.

Leaching has implications to both large- and small-scale mining. Mines previously closed may be reopened using these techniques. Lastly, new heap leaching technologies have led to an increase in the reworking of old mine and mill tailings. In many cases these are under federal jurisdiction, having been previously abandoned without being patented.

A summary of anticipated mineral exploration and development activities in the RMP area is provided in Table 3-9. This summary is based on probable mineral occurrences. Therefore, the actions described are speculative in nature. Most mining is expected to be of moderate to small scale. Most notices filed will involve placer or exploration operations. Two large

porphyry copper mines could be opened by the turn of the century—this depends in large part upon a revitalization of worldwide copper markets. Filing of about 30 notices and two MPOs are expected each year within the RMP area.

WATERSHED CONDITION

Watershed condition has been evaluated on each grazing allotment in the RMP area. This evaluation considered current erosion conditions, erosion hazards and the soil moisture/temperature regime. To facilitate management, watershed conditions were evaluated on grazing allotment boundaries rather than topographic features; in this discussion, then, the terms "watershed unit" and "allotment" are interchangeable.

Appendix 11 lists the assigned watershed condition for each grazing allotment in the RMP area. The watershed categories are defined as follows:

Category	Description	Federal Acreage in RMP Area
I:	Watershed units are in satisfactory erosion condition and are not especially susceptible to wind and water erosion	381,000
II:	Watershed units are in satisfactory erosion condition but are susceptible to wind and water erosion following disturbance	182,000
III:	Watershed units currently are in unsatisfactory erosion condition but because of the soil temperature/moisture regime these soils would be unresponsive to treatment	102,000
IV:	Watershed units currently are in unsatisfactory erosion condition and the soils would be responsive to treatment	246,000



As identified in the Phoenix Resource Area's Watershed Improvement Program Package (1987), the purpose of categorizing these allotments is to (1) identify existing or potential problem areas and (2) to set priorities for watershed rehabilitation work.

Watersheds in either Category I or II are currently in satisfactory or better erosion condition. These watersheds are now functioning properly. Soil cover is adequate for that range site. Moderate peak runoffs are maintained because of good infiltration and the absence of numerous gullies. Erosion is within acceptable levels. However, the Category II watersheds are particularly vulnerable to surface disturbances. Management of Category II watersheds would therefore focus on preventing undue surface disturbances.

TABLE 3-9
Mineral Development Trends by Mineral District
Bureau of Land Management, Phoenix District, Arizona

District	Geographic and Geologic Description of Location	Development
Prescott, Big Bug, Yarber Wash, Agua Fria and Ticonderoga	Lynx Creek, Big Bug and Upper Agua Fria drainages; operations mostly in floodplain of modern drainages; region is along northeast flank of Bradshaw Mtns.	Placer exploration and development; extremely high interest to casual users; larger professional operations expected to continue; 3 notices/yr. expected; 1 MPO/yr. for placer development.
Same as above	All areas extending from the northeast flanks Bradshaw Mtns. to Lonesome Valley, bounded by Dewey and Cordes Jct; development to focus mostly on gold in Precambrian quartz veins and gold and silver replacement deposits associated with rhyolite dikes in area.	Lode deposit exploration and development; casual mineral work mostly in surface exploration; professional development will focus primarily on geophysical prospecting methods; some drilling where potential host rocks obscured by Tertiary volcanics and/or quaternary alluvial cover; 3 notices and 1 MPO/yr. expected.
Burmister	Perry Mesa area east of Cordes Jct south to Black Canyon City; thick sequences of Tertiary volcanics and younger alluvium cover basement rocks of Yavapai Schist.	Geophysical techniques will be used to identify drilling targets; moderate levels of exploration expected to delineate possible mineralization in subsurface rocks; 1 notice/yr. expected.
Black Canyon, Richinbar, Fiscus, Kay	Gold placer deposits well-known in area extending from Bumblebee to Black Canyon City, south to Lake Pleasant; deposits confined mostly to Bumblebee, Turkey, Castle and Black Canyon creeks and Agua Fria River; most drainages along east flank Bradshaw Mtns.	Casual to large-scale exploration and development operations common throughout area; continued moderate to high levels of placer mining expected; 5 notices/yr. expected.
Tip Top, Humbug, Silver Mtn, Tussock, Castle Creek, Black Rock, Red Picacho, White Picacho, Black Dome, Pikes Peak	South flank of Bradshaw Mtns from Black Canyon City to areas 10 miles east of Wickenburg; South marked by Lake Pleasant; lode ores found in precambrian Yavapai Schists, Cretaceous to mid-Tertiary granites and Tertiary basalts at surface; low-grade gold and silver deposits of principal interest; strategically important tungsten skarn terranes in Tussock area will attract some interest.	Lode development activity expected to remain at current high levels or expand; operations may employ 1 to 5 people each; 3 notices and 1 MPO/yr. expected; exploration activities expected to involve surface trenching and drilling; in many places, geophysical methods will be used to identify target areas.
Globe Hills, Miami-Inspiration	Miami-Globe area.	Exploration for copper ore bodies related to Miami and Inspiration ore bodies; activities will be confined to companies of moderate and larger size; casual activity will be limited; 3 notices expected.
Goldfield, Superstition Mountains	North and east of Apache Jct.	Exploration should be limited to mostly occasional shallow drilling and surface prospecting; lode development expected to continue in areas with known gold and silver production; production and

(Continued on next page)

TABLE 3-9 (Continued)
Mineral Development Trends by Mineral District
Bureau of Land Management, Phoenix District, Arizona

District	Geographic and Geologic Description of Location	Development*
		development expected to decline; 3 notices/yr. expected.
Mineral Butte	South of Mesa on northeast boundary of Gila River Indian Reservation.	Exploration; iron oxide staining suggests presence of copper porphyry system; exploration drilling of oxide zone expected; 1 notice/yr. expected.
Mineral Hill, Mineral Mtn, Martinez Canyon, Pioneer Alabama, Copper Butte, Mineral Creek, Riverside, Dripping Springs, Steamboat Mtn, Cottonwood, Ripsey Wooley, Red Hills	South of Superior; known for copper porphyry deposits.	Continued exploration to delineate large porphyry copper deposits expected throughout region; most notable exploration will occur in Copper Butte/White Canyon area west of Ray Mine; eventual development of at least 1 openpit mine expected; 2 notices and 1 MPO/yr. expected.
Gold Circle, Black Canyon	10 to 20 miles northeast of Oracle, known for production of tungsten, beryllium and lithium.	Moderate levels of exploration to delineate deposits of tungsten expected; some drilling expected; 1 notice/yr. expected.
Owl Head, Durham Suizo	Copper porphyry systems mined here in past; late Cretaceous to middle Tertiary intensive systems common throughout area.	Exploration drilling resulting from geophysical surveys expected; 1 notice/yr. expected.
Silver Bell, Waterman, Magonigal	Strong evidence of copper mineralization found along east flank of Waterman Mtns; additionally, high-grade deposits Permian limestone identified; extraction expected as Tucson metropolitan area expands.	Exploration drilling expected in secs. 29 and 30, T. 12 S., R. 9 E.; 80-acre mine development expected in NW¼ sec. 30; moderate drilling activity anticipated throughout rest of Waterman Mtns/Silver Bell area; aim would be delineating large porphyry copper systems; 1 notice/yr. expected.
Coyote, Pima, Papago, Keystone	South of Tucson and west of Sahuarita and Green Valley; copper porphyry deposits well known; related to late Cretaceous to middle Tertiary intrusive bodies common in southern Arizona.	Largest operating mines on patented land or inside bounds of San Xavier Indian Reservation; drillings to penetrate local alluvium to target host rocks expected; 2 notices and 1 MPO/yr. expected.
Las Guijas	15 to 20 miles west of Arivaca Jct known to have potential for tungsten, beryllium and lithium.	Small-scale tungsten prospecting will involve some small prospect pits and trenching; 1 notice/yr. expected.
Oceanic, Cerro Colorado, Amado, Mildred Peak	10 to 15 miles west of Arivaca Jct known for deposits of copper, gold, silver, lead and zinc; ranges in age from Jurassic to middle Tertiary.	Placer development expected along drainages; exploration programs for low-grade copper/gold deposits expected at moderate levels; production should remain small; 3 notices/yr. expected from placer and lode exploration combined.
Aguirre Peak	Along east flank of Baboquivari Mtns; tungsten, beryllium and lithium deposits known.	Small-scale prospecting for tungsten will involve some small prospect pits and trenching; 1 notice/yr. expected.

Source: Phoenix District files.

Watersheds in Categories III and IV are currently in unsatisfactory erosion condition—typified by poor soil cover, accelerated erosion and increased runoff, sediment yield and salinity discharge, they contribute to the degradation of both air and water quality. Watersheds in Category III are too hot and dry for land treatments, such as seedings, to be successful. Category IV watersheds have climatic conditions that make them suitable for rehabilitation and have, therefore, been identified for treatment in the Watershed Improvement Program Package (1987). There is no trend data available for watershed condition.

The salinity of soils was not a classification criteria in this categorization. Rather, the relationship between erosion condition and sediment yield was inferred to have yet another relationship with salinity discharge. A highly eroded watershed will carry more sediments downstream. Where the watershed has soils which are saline, those sediments will also be saline. This becomes important in planning management of erosion-prone or debilitated watersheds.

Table 3-10 presents an approximation of acres of saline soils for erosion-prone and debilitated watersheds in the RMP area.

Moderately and strongly saline soils are found along the Puerco and Little Colorado rivers in Apache and Navajo counties. Slightly saline soils are found scattered throughout the planning area, particularly along drainages and valleys of the Little Colorado, Salt, Gila and Santa Cruz rivers (USDI BLM, 1987).

RANGELAND MANAGEMENT

At present the RMP area has 210 ranch operators leasing 224 grazing allotments. A total of 98,160 AUMs of grazing use is allocated on these allotments. Approximately 893,140 acres of public land are being grazed in the RMP area. Most operators graze cattle,

but horses, goats and sheep use some allotments (BLM, Phoenix District files). Public land grazing in the RMP area is guided by the findings in the *Final Eastern Arizona Grazing EIS* (BLM 1986). Appendices 2 and 3 show the grazing decisions by allotment from the *Final Eastern Arizona Grazing EIS*.

For the purpose of analysis, ranches within the RMP area were divided into three size classes, based on their authorized grazing preferences on federal, state and private land. Table 3-11 shows the number of ranches in each size class and their dependence on public land. The following size classes characterize ranches in the area: small, 0 to 99 head per ranch (38 cows typical); medium, 100 to 199 (139 cows typical); and large, 200 head and more (520 cows typical).

TABLE 3-11
Ranch Size Classes and Ranch Dependency
Bureau of Land Management,
Phoenix District, Arizona

Size Class Number of Cows	Number of Operators	Ranch Dependence on Public Land (Average Percent)
Small (0-99 Animal Units (AUs))	82	31
Medium (100-199 AUs)	36	24
Large (200 AUs and larger)	92	8
TOTAL	210	18

Source: Phoenix District files.

The rancher's ability to borrow money is determined by many factors, including assets, current liabilities and profitability. Public laws (*Taylor Grazing Act* Sec. 3 and *FLPMA* Sec. 403(f)) accord no right, title, interest or estate in or to the public land by issuing a grazing permit or lease. The BLM, therefore, does not recognize grazing preference as real

TABLE 3-10
Acres of Saline Soils by Watershed Category
Bureau of Land Management, Phoenix District, Arizona

Watershed Category	Non-Saline	Slightly Saline	Moderately Saline	Strongly Saline
I	N/A	N/A	N/A	N/A
II	97,000	74,000	5,000	6,000
III	50,000	52,000	0	0
IV	177,000	69,000	0	0

Source: Phoenix District files.

property. However, BLM grazing leases are commonly bought and sold and the lease value is based on the number of animal units (AUs) that can be stocked. The current market value of leases in the RMP area is estimated to be \$125 per AUM or \$1,500 per cow yearlong. At \$1,500 per animal unit, the value of the typical small ranch (38 AUs) in the RMP area would be \$57,000, the typical medium ranch (139 AUs) \$208,500 and the typical large ranch (520 AUs) \$780,000.

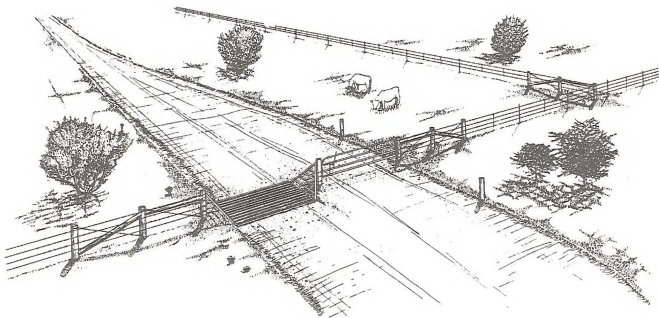
AREAS OF CULTURAL SIGNIFICANCE

Cultural resources in the RMP area are rich and diverse in nature. Evidence of man's use of the RMP area indicates occupations dating to at least 6,000 B.C. Due to the cultural diversity of the area, it is useful to view the RMP area's cultural values in terms of major river drainages (see Map 3-2).

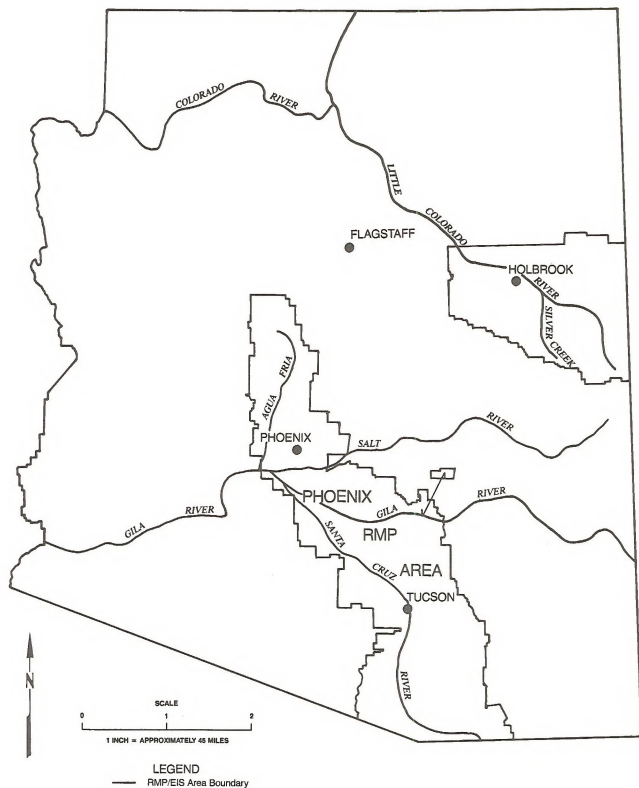
Santa Cruz/Salt/Gila Drainage. Evidence of man's first presence in central and southern Arizona is seen in Archaic sites. These sites consist mainly of lithic (chipped stone artifacts) scatters, quarries, and rock alignments. The earliest Archaic sites date to at least 6000 B.C. Traditionally viewed, the Archaic period ended around the time of Christ.

About that time the agricultural-based Hohokam began to occupy the areas along major water courses in south central Arizona. Major Hohokam pithouse villages developed in the region. Hohokam sites exhibit irrigation agriculture, distinctive red-on-buff ceramics, ball courts, and after 1200 A.D., walled compound village units. Abandonment of these sites probably occurred about 1450 A.D.

The historic era here began with the arrival of Father Eusebio Kino to the southern deserts of Arizona in 1683. The heritage left by the Spanish colonials/missionaries may be seen today in the missions



MAP 3-2
MAJOR RIVER DRAINAGES
IN ARIZONA



of the Tucson area (e.g., Santa Ana del Chiquiburitac). Tucson itself was originally a Spanish mission/presidio (fort) to which agriculture activities provided economic support.

The mining industry holds an important niche in the area's history. Communities near the Gila River (Globe, Miami, Superior) have developed around the extraction, processing and sale of copper, gold and silver. Numerous mining locales dating from Spanish colonial times are nestled in the mountain ranges of southern Arizona (Granger 1983).

Establishment of a direct southerly route from the eastern United States to California left its mark on the Gila region. Remnants of the notable Butterfield Stage Route are still visible along the Gila River.

Table 3-12 shows areas of significant cultural values by major drainage in the RMP area.

Agua Fria Drainage. The Archaic period is sparsely represented along the middle and lower Agua Fria River. It is evident that Hohokam associated sites were along the Agua Fria River and its principal tributaries by the eighth century A.D. Sites with the distinctive red-on-buff ceramics, agricultural development, ball courts and pithouse village units cluster in the northern periphery of present day Phoenix along the lower Agua Fria. "Colonial" Hohokam (700 to 900 A.D.) intrusion into the upper reaches of the Agua Fria (i.e., Dewey, Cordes Junction) began by the 10th century A.D. An environmental adaptation not

TABLE 3-12
Areas of Cultural Significance
Bureau of Land Management, Phoenix District, Arizona

Drainage	Significant Areas	Sites Identified	Significance	Condition
Santa Cruz/ Salt/Gila	Santa Ana del Chiquiburitac	1	Site of 19th Century Spanish mission outpost	Only foundations remain; ORV damage evident
	Avra Valley	15	High density Tucson Basin Hohokam properties	Ground vegetation depleted; caused serious erosion
	Reymert Townsite	1	Abandoned 1900s mining town near Picket Post Mtn.	Walls deteriorating; danger of further collapse; major vandalism
	Middle Gila Archaeological Zone	225	High density prehistoric/historic sites along Gila R.	Vandalism/erosion damage evident
Agua Fria	Perry Mesa	92	Large post-1200 A.D. pueblo complex	Vandalism/erosion damage extensive
	Lower Agua Fria River	16	High density northern Hohokam sites	Vandalism/erosion damage extensive
	Lower Texas Gulch	20	High density prehistoric/historic resource sites in Dewey/Humboldt area	Moderate erosion damage evident
Little Colorado/ Silver Creek	Zuni-Hardscrabble	11	High density Anasazi (Pueblo) sites north of St. Johns	Major vandalism evident
	Upper Little Colorado	20	High density prehistoric/historic properties	Major vandalism; erosion deteriorating historic properties
	Snowflake-Mesa Redonda Region	40	High density Anasazi (Pueblo) sites	Major vandalism

Source: Phoenix District files.

evident in the Salt-Gila basin is exhibited by the presence of limited activity sites and seasonal camps. Sites along the Agua Fria, in addition to exhibiting lowland Hohokam characteristics, also consist of surface masonry compounds, mountain "lookouts," check dams and petroglyphs.

A localized branch (Prescott) of the Patayan occupied the upper Agua Fria region from 700 to 1200 A.D. Sites there generally consist of crude surface masonry and gray and brownware ceramics.

By 1200 A.D. a large complex of Pueblo-like communities was built along the middle Agua Fria (Perry Mesa Archaeological District). Villages in excess of 200 rooms may be found along the major canyons of the Agua Fria and Squaw Creek. Evidence of Hohokam and Salado cultures are found in this "mesa-canyon" complex. Historical camps and artifact scatters in the Agua Fria region are traceable to Yavapai, Apache, Maricopa and Pima people.

Mining (gold, silver and copper) pursuits are evident in the Prescott area and surrounding Bradshaw Mountains. The Phoenix-Prescott transportation corridor in pre-Interstate 17 days was through the precipitous Bradshaw Mountains. The old mining town of Gillette (only foundations remain) attests to a vanished era.

Cattle and sheep ranching have been in the Prescott region since its days as "Fort Whipple," the first territorial capital of Arizona. Competition with the local Yavapais for land usage led to periodic raids. Outposts were necessary to protect the incoming Anglo populations. The Black Canyon trail system was historically a stock driveway between the winter pastures of southern Arizona and summer grazing of the Mogollon Rim country.

Little Colorado-Silver Creek Drainage. Early human evidences in the region include Folsom and Clovis projectile points in isolated scatters near the towns of Concho and Sanders. The finds are believed to date as early as 11,000 B.C. Desert Culture (hunter-gatherer, 7000 B.C. to 1 A.D.) traditions have been recorded in the Concho-Vernon region. Lithic scatters there correlate stylistically to the Cochise Culture of southern Arizona. The Tolchaco Focus is an early lithic assemblage that is found along the terraces of the Little Colorado River, but no dates have been established for it.

Mogollon settlements occupied portions of the upper Little Colorado River Valley by 300 B.C. Sites include pit-house villages with associated storage cists and (later) kivas. Brownware, redware and grayware ceramics are typically associated with these Mogollon sites. A wide array of lithic technology is also evident. Sites are usually found on valley

floors, hills and benches and mesa sides above the valley and date up to the 11th century A.D. The Anasazi (Pueblo) Culture had its beginnings around 1 A.D. in the four corners region. Early (Basketmaker) sites are found along the Little Colorado River and its major tributaries. Generally, they are in cave or pit-house situations and are nonceramic. Artifacts consist mainly of basketry, and ground or chipped stone. Surface masonry associated with pit house structures appear after 700 A.D. Ceramics manufactured during this phase include painted whitewares and graywares. By 1100 A.D. occupation was widespread along the Little Colorado, Silver Creek and their main tributaries.

The village size was relatively small before 1250 AD, and the units were dispersed. Sites are associated with kivas (underground structures probably used for religious and social occasions). The Anasazi culture appeared to peak during 1300 to 1450 A.D., as evidenced by the ruins of large villages found in the Winslow, Snowflake and Petrified Forest regions. These "great towns" were multi-storied villages with multiple kivas. Sites more than 20 acres in size and containing 1,000 rooms have been discovered. Various styles of polychrome ceramics originated in these villages.

Spanish occupation of the Little Colorado-Silver Creek area began in 1540 with the arrival of Coronado. There are at least two known pre-1870 colonial Spanish or Mexican sites near St. Johns and Lyman Lake. Mexican and Mormon pioneers settled along the Little Colorado during the late 19th century. The communities of Joseph City, Concho and St. Johns are modern outgrowths of these early encampments. The Silver Creek towns of Snowflake, Taylor and Shumway were originally settled by Mormon colonists from Utah during the 1870s. Abandoned masonry and wood cabins and the foundation of deserted towns are all that remain of some communities.

VEGETATION

The Phoenix RMP area is made up of seven biotic communities (Brown and Lowe 1982) as follows:

The Great Basin Desertscrub Community (4 percent of the public land in the RMP Area). This community is dominated by scrub species such as sagebrush, shadscale, blackbrush, winterfat, greasewood and rabbitbrush. A few cacti of short stature such as prickly pear, cholla and hedgehog are also found. This biotic community is found in Apache and Navajo counties at elevations ranging from 3,900 to 7,200 feet.



Junegrass

The Plains and Great Basin Grassland (12 percent). This community is of the short grass type. Blue grama, Indian ricegrass, alkali sacaton and galleta grass are typical. Such shrubs as fourwing saltbush, sagebrush and winterfat are common, along with invading junipers. This biotic community is in Apache and Navajo counties at elevations between 4,900 and 5,600 feet.

The Great Basin Conifer Woodland (9 percent). This community is prevalent in southern Apache and Navajo counties. It consists of such woody species as one-seed juniper, Utah juniper and pinyon pine. In the open areas, grasses and shrubs such as blue grama, galleta, snakeweed and threadleaf groundsel are common. The elevation of this biome extends from 4,400 to 7,500 feet.

The Interior Chaparral Community (7 percent). This community is found in central Yavapai County at elevations from 3,400 to 6,000 feet. This biotic community consists primarily of shrubs such as scrub oak, desert ceanothus, mountain mahogany and manzanita.

Madrean Evergreen Woodland (2 percent). This community is found in the mountain ranges of Santa Cruz and eastern and southern Pima counties at elevations between 3,900 and 4,400 feet. The most prevalent vegetation is the Emory oak and Arizona white oak, intermixed with such grass species as sidecoats grama and green sprangletop.

Semidesert Grassland (6 percent). This community is most abundant in central Yavapai, Santa Cruz and southern Pima counties at elevations between 3,600 and 4,600 feet. The most common perennial grasses in this community are curly mesquite and tobosa in the north and sidecoats, blue and black grammas in the south. Shrub growth is represented primarily by mesquite, mimosa and false mesquite.

Sonoran Desertscrub (60 percent). This community is found in Maricopa, Pinal and Pima counties at elevations less than 3,400 feet. Typical vegetation includes palo verde, ironwood and mesquite; saguaro, barrel and cholla cacti; creosote, bursage and wolf berry shrubs; and grass species such as bush muley, threeawns and sand dropseed.

RIPARIAN HABITAT

Riparian areas are those areas of land which are directly influenced by permanent water (i.e., surface

and/or subsurface). These areas have visible vegetation or other physical characteristics because of the influence of permanent water. In the RMP area, riparian associated vegetation includes cottonwood, willow, sycamore, ash, walnut and netleaf hackberry trees and cattails, reeds and sedges.

Riparian habitat is among the RMP area's most productive and important ecosystems, totaling about one percent of the public land in the RMP area. Characteristically, riparian habitat has a greater diversity of plant and animal species and vegetation than adjoining areas. Healthy riparian systems also filter and purify water as it moves through them, reduce sediment loads and enhance soil stability, provide microclimatic moderation when contrasted to extremes in adjacent areas, and contribute to groundwater recharge and base flow.

Riparian habitat provides wildlife with important feeding, resting, nesting and spawning habitat, as well as protective cover and travel corridors. In addition to being yearlong habitat for numerous species, it is seasonal habitat for local and migratory species. Jahn and Trefethen (1972) stated that "... regardless of species, riparian vegetation is the most valuable wildlife habitat in Arizona." Riparian areas in the RMP area provide important habitat for many wildlife species, both common and rare. Table 3-13 lists federally and state-listed wildlife species which use riparian systems in the RMP area.

On public land within the RMP area, the best developed and most extensive riparian areas are along the Gila and Agua Fria rivers and Sycamore, Bumble Bee and Larry creeks. Elsewhere on public land, riparian vegetation grows more often as small clusters of trees or scattered trees interspersed with riparian scrub vegetation. A total of 37 riparian areas on public land are located along 93 miles of drainages and on 630 acres in two reservoirs. Table 3-14 provides information about each of the RMP area's riparian drainages.

The table reveals that of the 93 miles of riparian habitat, six miles is in good ecological condition, 80 miles is fair and seven miles is poor.

SPECIAL STATUS PLANTS

Several special status plant species grow within the RMP area (See Appendices 9 and 10). The following is a description of those species expected to be impacted by actions listed in this EIS.

Peebles Navajo Cactus (*Pediocactus peeblesianus* var. *peeblesianus*) — Federally Listed Endangered. Peebles Navajo cactus is a narrow endemic known from one location in northeastern Arizona. Five small populations (about 1,000 plants) are known to live in a 2,540-acre area. The BLM administers about 640 acres of the cactus habitat supporting two of the populations with about 20 percent of the known population (200 individual plants).

Threats to the populations include: (1) habitat destruction from highway construction and ongoing gravel pit operations, (2) collection pressures from private and commercial cactus collectors, (3) habitat modification by livestock and (4) off-road vehicle use.

The cactus grows in shallow soils on gently sloping to flat mesa tops at 5,570 to 5,740 feet in elevation. The local vegetation is open and sparse and Peebles Navajo cactus typically grows in the exposed sites that provide full sunlight. The biotic community is the Plains and Great Basin Grassland near the ecotone with the Great Basin Desertscrub community. The dominant associated species are shadscale, fourwing saltbush, rabbitbrush, snakeweed, galleta, Mormon tea and prickly pear cactus.

TABLE 3-13
Federally and State-Listed Species in Public Land Riparian Habitat
Bureau of Land Management, Phoenix District, Arizona

Federally Listed		Category 2 Candidate	State-Listed
Endangered	Proposed		
Gila topminnow	Little Colorado	Gila chub	Common black hawk
Desert pupfish	River spinedace	Colorado River	Mississippi kite
Bald eagle		roundtail chub	Osprey
Peregrine falcon		Gilbert's skink	Snowy egret
Yuma clapper rail		Long-billed curlew	Great egret
			Black-crowned night heron

Source: Phoenix District files.

TABLE 3-14
Riparian Habitat on Public Land
Bureau of Land Management, Phoenix District, Arizona

Name/Location	Habitat Miles (Acres)	Ecological Condition	Apparent Trend
Chevelon Creek T. 16 N., R. 16 E.	1.0	Good	Static
Clear Creek T. 17 N., R. 15 E.	0.5	Good	Static
Silver Creek T. 16 N., R. 22 E.	1.7	Fair	Down
Little Colorado River Apache-Navajo counties	6.7	Fair	Down
Agua Fria River T. 8 to 13 N., R. 1 to 3 E.	7.4	Fair	Static
Arrastre Creek (Bumble Bee Tributary) T. 9 N., R. 2 E.	3.1	Good	Static
Bumble Bee Creek T. 9 to 11 N., R. 2 E.	7.7	Fair	Static
Hassayampa River T. 9 to 10 N., R. 3 W.	13.1	Fair	Down
Indian Wash T. 11 N., R. 3 E.	0.5	Fair	Static
Larry Creek T. 9 N., R. 3 E.	0.4	Excellent	Static
Castle Creek (Bumble Bee Tributary) T. 9½ N., R. 2 E.	0.9	Fair	Static
Sycamore Creek T. 11 N., R. 3 E.	0.8	Fair	Static
Cottonwood Gulch T. 8 N., R. 2 E.	0.2	Fair	Static
Antelope Creek T. 11 N., R. 2 E.	2.7	Poor	Down
Chalky Creek T. 6 N., R. 1 W.	0.4	Poor	Static
Gila River T. 4 S., R. 11 to 13 E.	15.0	Fair	Static
Walnut Canyon T. 3 S., R. 12 E.	1.2	Fair	Static
White Canyon T. 3 S., R. 12 E.	3.1	Fair	Static
Tule Creek T. 8 N., R. 1 E.	1.0	Fair	Static
Martinez Canyon T. 3 S., R. 12 E.	0.9	Good	Static
Galena Gulch T. 13 N., R. 1 E.	0.2	Fair	Static
Boulder Creek T. 8 to 9 N., R. 1 E.	4.2	Fair	Static
Humbug Creek (Agua Fria R. Tributary) T. 8 to 9 N., R. 1 E.	8.0	Fair	Static
Castle Creek (Agua Fria R. Tributary) T. 7 to 8 N., R. 1-2 W.	3.1	Poor	Static
Oak Creek T. 9 N., R. 2 to 3 W.	3.5	Fair	Static
Cherry Creek T. 10 N., R. 3 W.	0.2	Good	Static
Minnehaha Creek T. 10 N., R. 3 W.	0.5	Poor	Static
Spring Creek T. 10 N., R. 3 W.	0.8	Fair	Static
Arrastre Creek (Hassayampa R. Tributary) T. 11 N., R. 3 W.	0.7	Fair	Down

(Continued on next page)

TABLE 3-14 (Continued)
Riparian Habitat on Public Land
Bureau of Land Management, Phoenix District, Arizona

Name/Location	Habitat Miles (Acres)	Ecological Condition	Apparent Trend
Cottonwood Creek (Tributary to Boulder Cr.) T. 8 N., R. 1 E.	0.6	Fair	Static
Cottonwood Creek (Hassayampa R. Tributary) T. 10 N., R. 3 W.	0.6	Fair	Static
Cocio Wash T. 12 S., R. 9 W.	0.3	Poor	Static
Government Spring Wash T. 10 N., R. 2 E.	0.4	Fair	Static
Slate Creek T. 8 N., R. 2 E.	0.4	Fair	Static
Rock Creek T. 8 N., R. 2 W.	0.2	Fair	Static
Banty Creek T. 8 N., R. 2 W.	1.0	Fair	Static
Zion Reservoir T. 14 N., R. 27 E.	(280)	Fair	Static
Gila River - West T. 1 N., R. 1 W.	(440)	Fair	Static
Picacho Reservoir T. 6 S., R. 8 E.	(350)	Fair	Static

Source: Phoenix District files.

Tumamoc Globeberry (*Tumamoca macdougalii*) — **Federally Listed Endangered.** Tumamoc globeberry is limited to a portion of the Sonoran Desert in Pima and Pinal counties and northern Sonora, Mexico. Its distribution within this area is uncertain.

The known population size of *Tumamoca* is about 2,000 individual plants (Olwell 1987). The habitat reaches from near Tucson west to Organ Pipe National Monument and south into Mexico. About 2.5 percent of the known population (48 individual plants) of *Tumamoca* has been documented on about 6,800 acres of inventoried habitat administered by the BLM. Based on the analysis of limited distribution data, the BLM administers approximately 14 percent (119,200 acres) of the 875,000 acres of habitat in the RMP area with a moderate to high potential for occurrence of *Tumamoca* (Map 3-3a).

An estimated 66 percent of the known population (1,324 *Tumamoca* plants) is currently being managed or protected by various federal agencies or is on land administered by the City of Tucson and the University of Arizona. An additional 790 plants are known to be on private or Indian land.

Tumamoc globeberry grows on lower mountain bajadas or in valley areas, often in the vicinity of drainages at 1,476 to 2,600 feet in elevation. The species is found on a variety of soils including rocky to gravelly loams, sandy loams and silty-clay loams derived from granite, rhyolite and basalt. The plant is

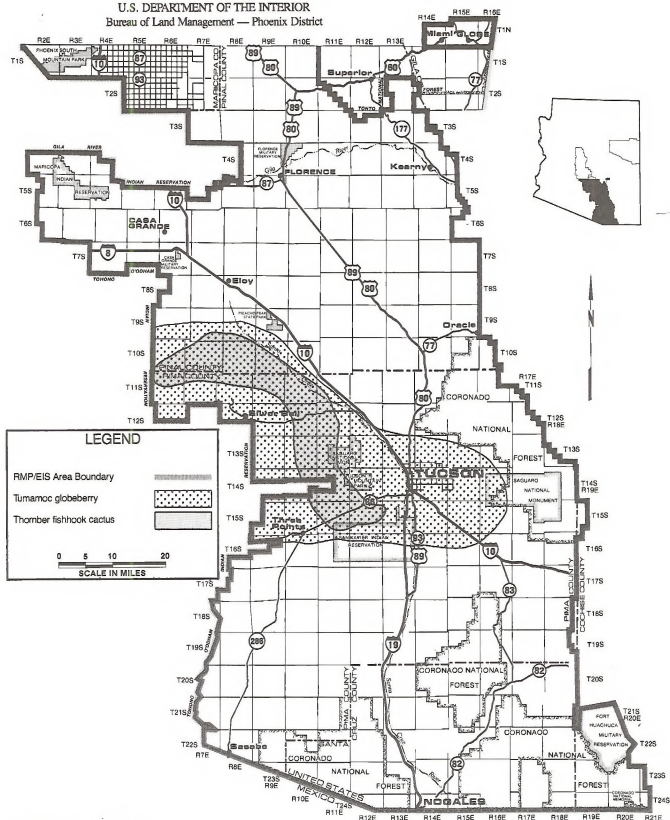
normally found under the shade of trees and shrubs such as ironwood, mesquite, catclaw acacia and whitethorn acacia which serve as "nurse" plants as well as support for the vines. Other associated plant species include creosotebush, foothill paloverde, triangle-leaf bursage and ratany.

Nichol Turk's Head Cactus (*Echinocactus horizonthalonius* var. *nicholii*) — **Federally Listed Endangered.** In the United States, Nichol Turk's head cactus is known from the Waterman Mountains and the Vekol Mountains, both in Pima County, Arizona.

Nichol Turk's head grows on various Paleozoic limestone formations at elevations between 3,281 and 3,830 feet. In the Waterman Mountains the cactus grows on dissected alluvial fans at the mountain foot and on slopes and saddles of the mountain proper. The vegetation is characteristic of the Arizona upland subdivision of the Sonoran Desertscrub biotic community which is dominated by saguaro cactus, paloverde and ocotillo.

The population in the Watermans consists of about 10,000 plants on approximately 3,100 acres, 63 percent (1,960 acres) administered by the BLM, 19 percent (600 acres) administered by the state of Arizona and 17 percent (540 acres) of private land. Other populations also occur on Indian land. Identified threats to the species include: (1) destruction of plants and

MAP 3-3A
SPECIAL STATUS PLANT HABITAT
(SOUTH CENTRAL PORTION)
 U.S. DEPARTMENT OF THE INTERIOR
 Bureau of Land Management — Phoenix District



SOURCE: Phoenix District Files

habitat by mining activity, (2) destruction of plants by ORV activity and (3) illegal collection of plants and seeds.

Thornber Fishhook Cactus (*Mammillaria thornberi*) — Federal Category 2 Candidate. Thornber fishhook cactus is known from Pima and southwestern Pinal counties, Arizona. The greatest concentrations are west of Tucson in the Avra Valley and on the Tohono O'Odham Reservation.

The species grows on fine, sandy loam soils of floodplains and alluvial fans and on stony or gravelly loam soils of dissected uplands at 780 to 2,460 feet in elevation. It grows in the shade of various plants including creosote, bursage, jumping cholla, foothill paloverde, mesquite and whitethorn acacia. In particularly saline areas, fourwing saltbush and all-scale are the primary shade plants.

The estimated population of Thornber fishhook cactus in the Avra Valley west of Tucson is about 200,000 plants. Habitat for the species extends from the Saguaro National Monument to Organ Pipe National Monument 90 miles to the west.

A total of 209 occurrences representing less than one percent of the estimated population of the plant has been documented on about 8,000 acres of land administered by the BLM in and around the Avra Valley. An additional 22,000 acres of suitable public habitat also occurs in the valley. Map 3-3a shows habitat for the cactus in the RMP area.

Identified threats to the cactus include destruction of habitat because of urbanization and agriculture and habitat disruption from livestock grazing.



Sword Milkvetch (*Astragalus xiphoides*) — Federal Category 1 Candidate. Sword milkvetch grows in Navajo and Apache counties. It has been documented between Holbrook and the Petrified National Forest associated with the badlands geologic formation.

The species lives on sandy to gravelly or silty soils at elevations between 4,920 and 5,400 feet and in association with the Plains and Great Basin Grassland biotic community. Important associated species include snakeweed, rabbitbrush, sagebrush, yucca and three grasses — sand dropseed, blue grama and galleta.

The plant has been documented on five localities between Holbrook and the Petrified National Forest; three of these are on private land and two are on federal land administered by the Petrified National Forest and the BLM. The BLM locality is presently known to support 360 plants. On two private sections near Holbrook there are about 400 plants. No population data exist for the locality in the Petrified Forest. Map 3-3b shows habitat for the plant in the RMP area. Identified threats to the species include: (1) loss of habitat by construction of roads and highways and (2) loss of habitat by urban subdivision development.

Paperspined Cactus (*Pediocactus papyracanthus*) — Federal Category 2 Candidate. Paperspined cactus is found in southern Navajo County, Arizona and in western New Mexico.

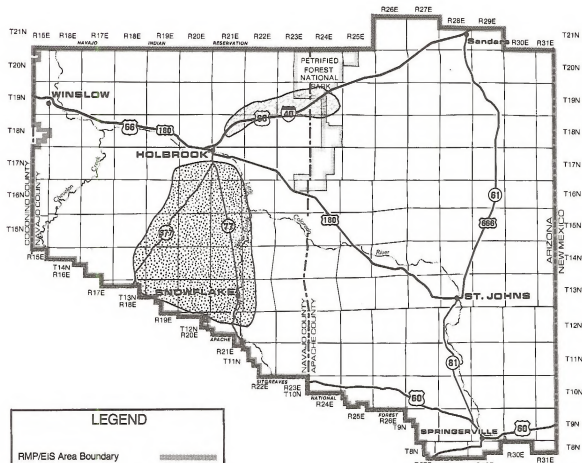
Within Arizona the known distribution of the cactus is from five miles north of Holbrook to 45 miles south near Snowflake in Navajo County (Map 3-3b). Within this area, 43 occurrences of the plant have been documented at 16 localities. Six of the localities are on the 40,000 acres of public land considered habitat.

Within New Mexico the cactus is known to grow in 12 counties. No estimate of habitat acres are available for the New Mexican populations.

The species grows on level to gently sloping sites at elevations between 4,800 and 7,200 feet. In Arizona the plant is on fine, sandy-loam soils derived from the Moenkopi Formation. Paperspined cactus is found in association with the Plains and Great Basin Grassland and the Great Basin Conifer Woodland biotic communities. Plant species associated with the cactus include snakeweed, sagebrush, juniper, rabbitbrush and the grasses, blue grama, galleta, dropseed and creeping muhly.

Identified threats to the plant species in Arizona include: (1) habitat loss by residential subdivision development, (2) trampling and reduction in protective grass cover by livestock and (3) removal by collectors.

MAP 3-3B
SPECIAL STATUS PLANT HABITAT
(APACHE-NAVAJO PORTION)
 U.S. DEPARTMENT OF THE INTERIOR
 Bureau of Land Management — Phoenix District



SOURCE: Phoenix District Files

WILDLIFE

Gila Topminnow (*Poeciliopsis occidentalis occidentalis*) — Federally Listed Endangered Species (also State-listed). Gila topminnows were historically widespread and abundant throughout the Gila River drainage in Arizona, New Mexico and Sonora, Mexico. They inhabited springs, streams and marshes below an elevation of 4,500 feet. Currently this small (25 to 40 mm) fish occupies a small remnant of its former range and is known to occur naturally in only nine isolated localities. The reasons for the decline of Gila topminnow populations were habitat loss by dewatering and predation by mosquitofish and other non-native fish species.

Currently the only site in the RMP area inhabited by Gila topminnows, Tule Creek, provides one-half mile of pool and run habitat and supports an abundant and apparently stable population. The topminnows were first introduced into Tule Creek in 1967 and were restocked 10 years later after flooding eliminated the first population. The Tule Creek population is under the full protection of the Endangered Species Act.

The RMP area has one site, Cocio Wash, which was inhabited by Gila topminnows until 1981. Floodwaters from nearby mine property carried metal-rich clay material into Cocio Wash and eventually resulted in the loss of the population. The Fish and Wildlife Service (USFWS), Arizona Game and Fish Department (AG&FD) and Bureau of Land Management jointly agreed that the best method of mitigating the loss would be to introduce topminnows into twenty suitable sites on public land within the BLM's Phoenix and Lower Gila Resource Areas. The Phoenix District of the BLM has a current operational plan for the introduction of Gila topminnows, as well as desert pupfish, into waters on public land. Introduction will be a cooperative effort involving the USFWS, AG&FD and BLM. Table 3-15 lists the suitable sites in the RMP area.

A Gila topminnow introduction program for Forest Service land began in 1982. A total of 65 sites were stocked and approximately 20 sites now support successful populations.

The BLM's objective for the management of the Gila topminnow is to maintain the existing population in Tule Creek and aid the recovery of the species through introductions.

Desert Pupfish (*Cyprinodon macularius*) — Endangered (also State-listed). Desert pupfish were historically common in desert springs, marshes and tributary streams of the Lower Gila and Colorado River drainages in Arizona, California and Mexico. This small desert fish (75 mm) currently occupies only a small remnant of its former distribution. Native populations no longer exist in Arizona but introduced populations grow at two sites in Organ Pipe National Monument, three sites on public land in the BLM's Phoenix District, the pond at Boyce Thompson Southwestern Arboretum and a tank near the Santa Cruz River.

The major reasons for the species' decline are competition for food and space with non-native fish species, predation by non-native fish and habitat losses.

One population of desert pupfish was introduced into Mesquite Spring in 1983. This successfully reproducing population is now under the full protection of the *Endangered Species Act*. The BLM's current operational plan for introducing desert pupfish, as well as Gila topminnows, involves the USFWS, AG&FD and BLM. Table 3-15 lists the RMP area's four sites identified as suitable for pupfish introductions. Desert pupfish are capable of surviving under a variety of environmental conditions, including conditions quite different from those found where natural populations exist. One of the major criteria used to select suitable sites is the absence of non-native fishes. As with the Gila topminnow, the purpose of introducing desert pupfish into suitable sites within a

TABLE 3-15
Suitable Gila Topminnow and/or Desert Pupfish Introduction Sites
Bureau of Land Management, Phoenix District, Arizona

Name	Legal Description	Species
Unnamed tributary to Cottonwood Gulch	T. 8 N., R. 2 E., sec. 20, NW¼	Topminnow, pupfish
Dandrea Spring	T. 12 N., R. 1 E., sec. 23, NW¼	Topminnow, pupfish
"Sooz" Spring	T. 6 N., R. 1 W., sec. 2, SW¼	Topminnow, pupfish
Doe Peak Spring	T. 7 N., R. 2 E., sec. 16, SW¼	Topminnow
Chalky Spring	T. 6 N., R. 1 W., sec. 13, SE¼	Topminnow, pupfish
Larry Creek	T. 9 N., R. 3 E., sec. 9, NW¼	Topminnow
Mesquite Spring	T. 3 S., R. 11 W., sec. 21, NW¼	Topminnow
Arrastre Creek	T. 9 N., R. 2 E., sec. 10, W½	Topminnow

Source: Phoenix District files.

significant portion of their historic range is to assist in the recovery of the species and the eventual delisting as an endangered species.

Little Colorado River Spinedace (*Lepidomeda vittata*) — Proposed as Threatened. The Little Colorado River spinedace historically lived throughout the upper portions of the Little Colorado River drainage in Arizona. Currently it is found outside the RMP area on East Clear Creek and Nutrioso Creek. Within the RMP area, populations are found on Chevelon and Silver creeks and in the Little Colorado River (USDI, FWS, *Federal Register* 1985). The streams cross scattered parcels of public land.

Spinedace numbers fluctuate dramatically from year to year, partially in response to rainfall patterns. The major overall cause for the loss of spinedace habitat has been the dewatering of streams and subsequent loss or change of habitat. Portions of East Clear Creek, Nutrioso and Chevelon creeks support healthy, self-sustaining populations of spinedace, while the Silver Creek and the Little Colorado River populations are spotty and difficult to locate (*Federal Register* 1985).

Public land along Silver Creek comprises 1.7 miles or 1.5 percent of the total RMP area spinedace habitat. While the spinedace has not been verified in Silver Creek within recent years, the habitat is believed to be occupied, at least during some years. Spinedace population fluctuations and distributions will reflect changes in instream flow. Therefore, spinedace may inhabit a particular location one year and be absent the following year.

Desert Bighorn Sheep (*Ovis canadensis mexicana*) — State-listed Species. The Silver Bell-West Silver Bell Mountains provide habitat crucial for an existing population of 50 to 60 desert bighorn sheep.

The Silver Bell-West Silver Bell Mountains herd and one in the Santa Catalina Mountains are the only native populations remaining in southeastern Arizona, although transplanted populations inhabit Aravaipa Canyon and the Galiuro Mountains. The Picacho, Tucson and Rincon Mountains are historic habitat but are no longer occupied.

Public land provides about 69 percent of the 57,000 acres of crucial habitat in the Silver Bell-West Silver Bell Mountains. State land provides 21 percent and private land, 10 percent. Map 3-4a identifies bighorn habitat in the RMP area. While desert bighorn sheep usually frequent the more rugged, inaccessible portions of rocky desert mountains, the lower elevations still provide important habitat. During the late winter and early spring, desert bighorns will forage on forbs and grasses on lower slopes and flats. Bighorns



also utilize lower elevations to reach water sources and to move between the rugged portions of the habitat.

The most significant bighorn use area on public land within the Silver Bell-West Silver Bell Mountains is the Ragged Top area with its important 800-acre lambing area. Approximately 20 bighorn sheep (i.e., ewes, lambs and young rams) remain in the Ragged Top area yearlong.

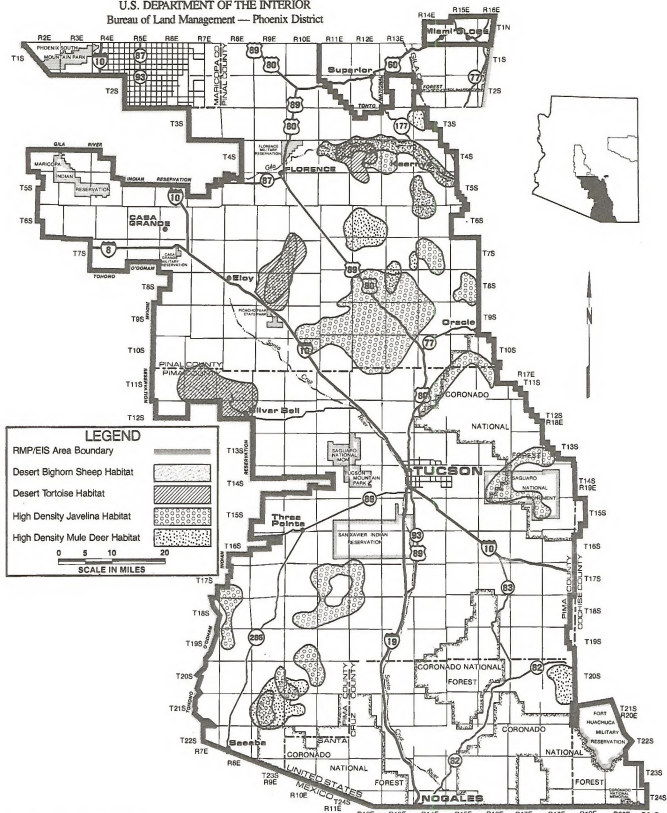
The existing Silver Bell-Baboquivari Habitat Management Plan (HMP) includes the crucial bighorn habitat as well as habitat used on an infrequent basis. Completed projects benefiting bighorn sheep include the development and maintenance of water catchments and modification and maintenance of fences.

Mining activity, intensive grazing, ORVs and right-of-way development all disturb bighorn and may affect their use of habitat.

Native desert bighorn sheep are susceptible to sinusitis, caused by a botfly carried by domestic sheep and goats. It has been BLM policy to coordinate with the AG&FD prior to authorizing any domestic sheep or goat use within a 20-mile radius of desert bighorn habitat. There have been no authorizations for domestic sheep or goat use in the vicinity of the Silver Bell-West Silver Bell Mountains.

MAP 3-4A
WILDLIFE HABITAT
(SOUTH CENTRAL PORTION)

U.S. DEPARTMENT OF THE INTERIOR
 Bureau of Land Management — Phoenix District



SOURCE: Phoenix District Files

The most extensive and intensive mining activity is on patented mining property at ASARCO's Silver Bell Unit which has been in operation for 34 years. A few bighorns continue to frequent portions of this mine property.

The BLM's objective for desert bighorn management is to maintain a viable population in the Silver Bell-West Silver Bell Mountains.

Desert Tortoise (*Gopherus agassizi*). A total of 3,853,000 acres in the RMP area lie within the range of the desert tortoise. About 14 percent (557,300 acres) of this range is on public land—land that supports paloverde-mixed cacti and semidesert grassland plant communities. Within this area, tortoises inhabit rocky slopes of lower desert mountains and, less frequently, bajadas and flats. Four areas are known to be important desert tortoise habitat: the Picacho Mountains, Donnelly Wash, the Silver Bell-West Silver Bell Mountains and the Tortolita Mountains. Map 3-4a identifies the RMP area's important tortoise areas.

The Picacho Mountains provide approximately 50,100 acres of important habitat—79 percent is state land, 18 percent is public and three percent is private land. Vaughn (1984) obtained desert tortoise home range and seasonal habitat use data in a 19.4-square-mile area that included six square miles of public land on the western slope of the Picacho Mountains. The study indicates that the Picacho Mountain area supports relatively high populations of tortoise.

The Grayback Mountain-Donnelly Wash area provides about 14,800 acres of important tortoise habitat—73 percent public, 26 percent state and one percent private land. Arizona Game and Fish Department personnel have observed and marked desert tortoises near Donnelly Wash, east of Florence. Limited field work indicates that the area may support fairly high tortoise densities.

The Silver Bell-West Silver Bell Mountains provide about 56,800 acres of important tortoise habitat—69 percent public, 20 percent state and 11 percent private land. The Silver Bell Mountains and the Ragged Top area, in particular, are considered to be good tortoise habitat. While a very limited amount of field work has indicated that tortoise densities may not be high, tortoise sightings indicate that the area is occupied.

Desert tortoise habitat in the Tortolita Mountains is composed primarily of state, private and county land and only 1,600 acres of public land.

Forage is a major limiting factor for desert tortoises. When they awake from hibernation they rely on abundant winter-spring annuals and perennial forbs and grasses to provide energy for reproduction.

Late summer rains produce blossoms which provide energy and nutrients required by young tortoises. Drought and heavy livestock use lessen the supply of annuals and can threaten tortoise reproduction. Other threats to tortoises include habitat destruction, off-road vehicle travel, collection, road kills, vandalism and canals. The desert tortoise is well adapted and resistant to the climatic and biological demands of an arid region, but its future in Arizona, California, Utah and Nevada is in jeopardy because of human activities (USDI, FWS 1982).

The BLM's management objective for the desert tortoise is to maintain or improve the capability of important habitat to support existing populations.

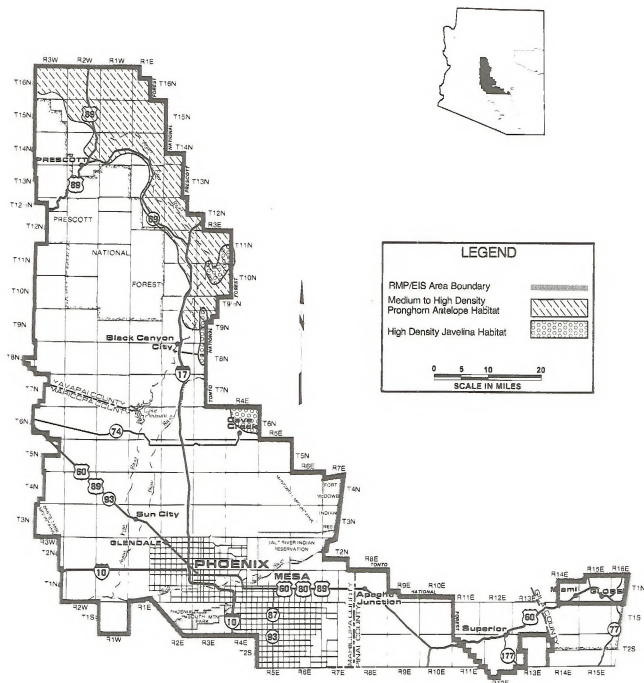
Pronghorn (*Antilocapra americana*). Within the RMP area, pronghorn inhabit 78,000 acres of semidesert grasslands in an area extending from Perry Mesa northward to Sycamore Mesa (Map 3-4b). Public land comprising 12 percent (9,100 acres) of the habitat supports low pronghorn densities (.5 to 1.5 pronghorns per square mile). Twelve hundred acres of public land on Sycamore Mesa and 1,280 acres on Perry Mesa provide important fawning areas.

Pronghorns move between Sycamore Mesa and the Chino Valley northeast of Prescott. For the most part, the Chino Valley habitat is on state and private land. The travel corridor connecting the mesa and valley habitats is 33 percent Forest Service land, 24 percent state land, 24 percent public land and 19 percent private land. Pronghorn movement through the corridor is becoming increasingly difficult because of development on private land.

The existing Black Canyon Habitat Management Plan provides management direction for the public land pronghorn habitat on the mesas as well as in the travel corridor. Management actions required to protect and improve pronghorn habitat include (1) allocating sufficient forage to maintain or increase populations, (2) modifying fences to make them less restrictive, (3) increasing the production of forbs, (4) maintaining sufficient amounts of suitable cover and (5) making existing water sources safely accessible to pronghorns.

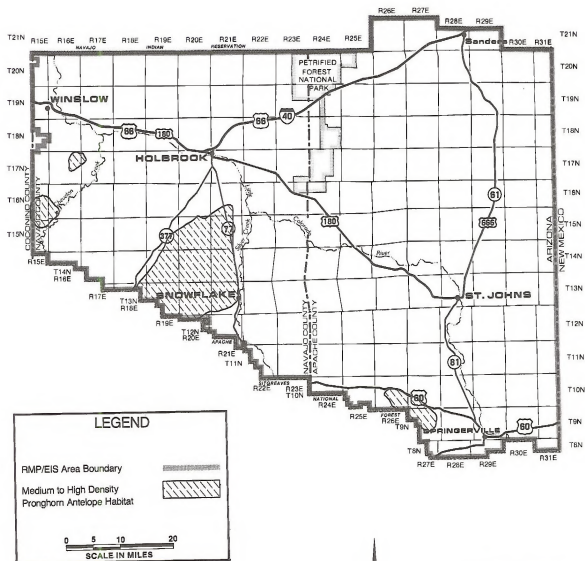
Pronghorn also inhabit a total of 3,150,400 acres of private, state, Park Service and public land in Apache and Navajo counties. Ninety-three percent of the habitat in the Apache-Navajo portion of the RMP area supports low (fewer than one per square mile) densities of pronghorn and the remaining seven percent supports medium (1.5 to 2.5) and high (2.5 to 4.0) densities (AG&FD 1986). Map 3-4c identifies medium to high density pronghorn habitat in the Apache-Navajo portion of the RMP area. Public land comprises seven percent (216,200 acres) of the total pronghorn habitat in the RMP area and for the most

MAP 3-4B
WILDLIFE HABITAT
(NORTH CENTRAL PORTION)
 U.S. DEPARTMENT OF THE INTERIOR
 Bureau of Land Management — Phoenix District



SOURCE: AG&FD, 1986

MAP 3-4C
WILDLIFE HABITAT
(APACHE-NAVAJO PORTION)
 U.S. DEPARTMENT OF THE INTERIOR
 Bureau of Land Management — Phoenix District



SOURCE: AG&FD, 1996

part supports sparse to very sparse pronghorn densities.

Development on private parcels in Apache and Navajo counties is influencing pronghorn use of adjacent parcels. Remote subdivisions may be found on the fringes of, as well as within, pronghorn habitat. As subdivisions become more numerous and human occupants move in, the land loses value as pronghorn habitat.

The BLM's objective for pronghorn management is to increase the capability of public land habitat to support pronghorns.

Mule Deer (*Odocoileus hemionus*). While mule deer are distributed throughout most of the RMP area, about half of the total area supports medium (4 to 7 deer per square mile) to high (7 to 10 per square mile) densities of mule deer (AG&FD 1986). Public land comprises 16 percent (1,680,000 acres) of the RMP area's medium to high density habitat. The majority of the RMP area's high deer densities are along the Gila River and in the Tortilla Mountains. Map 3-4a and 3-4b show the RMP area's high density mule deer habitat.

Three BLM/AG&FD-developed habitat management plans include 71 percent of the public land supporting medium to high deer densities in the RMP area. Management actions required to protect and improve mule deer habitat include (1) allocating sufficient forage to maintain or increase populations, (2) developing and maintaining yearlong water sources, (3) making existing water sources safely accessible to deer, (4) minimizing disturbances and development in prime habitats, (5) modifying old growth chaparral communities and (6) managing watersheds to minimize soil erosion.

The BLM's objective for mule deer management is to increase by three percent the capability of habitat to support mule deer.

Javelina (*Dicotyles tajacu*). Javelina are distributed throughout most of the southern portion of the RMP area. Public land comprises 19 percent (526,000) of the RMP area's 2,795,000 acres of medium (1.5 to 3 per square mile) to high (3 to 4 per square mile) density javelina habitat (AG&FD 1986). Nine percent of this public land supports high javelina densities. High densities are along the Gila River and in the Tortilla and Dripping Springs Mountains. Map 3-4a and 3-4b show the RMP area's high density javelina habitat.

Management actions required to protect and improve javelina habitat include (1) minimizing disturbances and development in prime habitats, (2)

developing and maintaining yearly water sources, (3) making existing water sources safely accessible to javelina and (4) managing watershed to minimize soil erosion.

The BLM's objective for javelina habitat management is to increase by four percent the capability of the habitat to support javelina.

WILD, FREE-ROAMING BURROS

The RMP area has one population of wild and free-roaming burros. *The Wild and Free-Roaming Horse and Burro Act* became law on December 15, 1971, authorizing the management of wild horses and burros on public land by the BLM and the U.S. Forest Service and proclaiming that wild and free-roaming horses and burros are protected from capture, branding, harassment or death. They are to be considered as an integral part of the natural system in the area where they were found in 1971.

Protected wild burros live in the RMP area, ranging over some 176,800 acres adjacent to Lake Pleasant in Maricopa and Yavapai Counties. Forty-four percent (78,380 acres) is public land. The remaining 56 percent is state and private land. Within the burro use area are seven individual grazing allotments and the Lake Pleasant County Park.

The use area has been inventoried twice since the original inventory in 1974. The original count of about 100 declined to about 60 burros in the 1985 survey.



Conflicts with private land owners over burro trespass has required the removal of 10 burros from the use area in the past five years. Construction of roads, ditches and fences as a result of urban expansion has restricted burro movement as has the denial of water use at certain springs and seeps. Intensive recreation around Lake Pleasant has led to requests from park officials for further restrictions.

RECREATION USE

Nearly all public land in the RMP area is used for some type of recreation, but the BLM administers no developed recreation sites. Scattered throughout, however, are many developed camping and picnic areas administered by private holders or other government agencies. Many of these facilities are adjacent to, and contribute to recreation use on, public land.

Because of the scattered nature of the public land in the RMP area, roads and trails often cross private land where locked gates may be encountered. Legal access to public land is lacking in the Sawtooth Mountains, Picacho Mountains, Coyote Mountains and Baboquivari Peak areas.

The presence of large metropolitan populations concentrated near Phoenix and Tucson creates intense recreational demands on public land in the RMP area. Many winter visitors to Arizona also use this land. As the major metropolitan areas and smaller communities continue to grow, use of the public land is expected to increase. Existing visitor use is described in Table 3-16.

Primary recreation activities on public land throughout the RMP area include hunting, rock hounding and off-road vehicle (ORV) driving. Picnicking, rock climbing, horseback riding, hiking, camping and sightseeing are also enjoyed.

Major roads provide good access to 175,000 acres of public land in the Lake Pleasant, Hieroglyphic Mountains, Hassayampa River and Black Canyon areas north of Phoenix. A new Lake Pleasant Road now crosses public land along the Hieroglyphic Mountains east of a planned 16,000-acre expansion of Maricopa County's Lake Pleasant Regional Park, which includes enlarging the lake from 3,000 to 10,000 acres. Recreational use of public land near the park can be expected to increase as a result of the park expansion. New tourist and resort development anticipated at Castle Hot Springs will also increase recreation use on adjacent public land.

The Hieroglyphic Mountains in Maricopa County and Yavapai County west of Lake Pleasant have major geographic features which include Baldy Mountain, Governor's Peak and Hellgate Mountain. These mountains provide excellent open space recreation opportunities to residents of the Wickenburg and greater Phoenix areas.

Old mining camps and the newly dedicated Black Canyon Hiking and Equestrian Trail are the major recreation attractions in the Black Canyon area.

About 155,000 acres of public land in Pinal County straddle the Gila River between Florence and Kearny. Major geographic features include Box, Martinez, Walnut and White canyons. The White Canyon Wilderness Study Area (WSA) lies in the eastern portion. Because of good access and a variety of terrain

TABLE 3-16
Public Land Recreation Visits* — 1986
Bureau of Land Management, Phoenix District, Arizona

Use Areas	Motorized Travel	Camping	Fishing	Hunting	Other**	Total
Baboquivari/Coyote Mtns.	50	250	0	50	450	800
Silver Bell/Sawtooth Mtns.	11,550	2,200	0	14,320	17,600	45,670
Picacho Mtns./Reservoir	450	225	150	100	400	1,325
Gila Canyon Region	11,360	2,425	150	13,500	17,600	45,035
Black Canyon Area	7,200	1,050	0	2,000	3,200	13,450
Lake Pleasant Region	16,990	3,200	0	22,830	18,350	61,370
Scattered tracts	4,350	500	0	1,000	2,900	8,750
TOTALS	51,950	9,850	300	53,800	60,500	176,400

* Recreation visit — A visit to BLM land and water, whether for a few minutes or a full day, for recreation purposes.

** Other — hiking, bicycling, mountain climbing and horseback riding.

Source: Phoenix District files; Recreation Management Information System data

and road conditions, the area provides good opportunities for organized group outings, hunting, fishing and mineral collecting. Four-wheel drive vehicles are used extensively throughout the area for rockhounding, sightseeing and hunting.

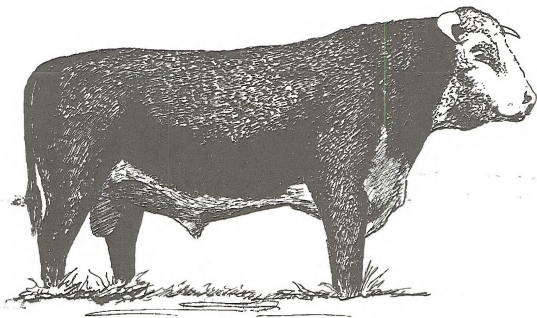
Also in Pinal County is the Picacho Mountains area with about 6,400 acres of well blocked public land, dominated by 4,500-foot Newman Peak. The Picacho Mountains are most accessible to the nearby communities of Casa Grande, Eloy and Coolidge (total population, 30,000); and the smaller communities of Picacho and Red Rock. These mountains offer visitors a variety of recreational activities, including hiking, hunting and nature study. Picacho Reservoir, in west central Pinal County, offers some fishing opportunities. The reservoir includes 350 acres of public land.

Public land totaling 102,000 acres is also fairly well blocked in the Sawtooth Mountains and West Silver Bell-Silver Bell Mountain areas in Pima and Pinal counties. These mountains are most accessible to Casa Grande, Eloy and Tucson, although access routes into the Sawtooths are limited. There are no

established hiking trails, but hikers can follow the few jeep trails or travel cross country. Hunting opportunities exist for big and small game. Major features include the Ragged Top Wilderness Study Area and Silver Bell and Confidence peaks.

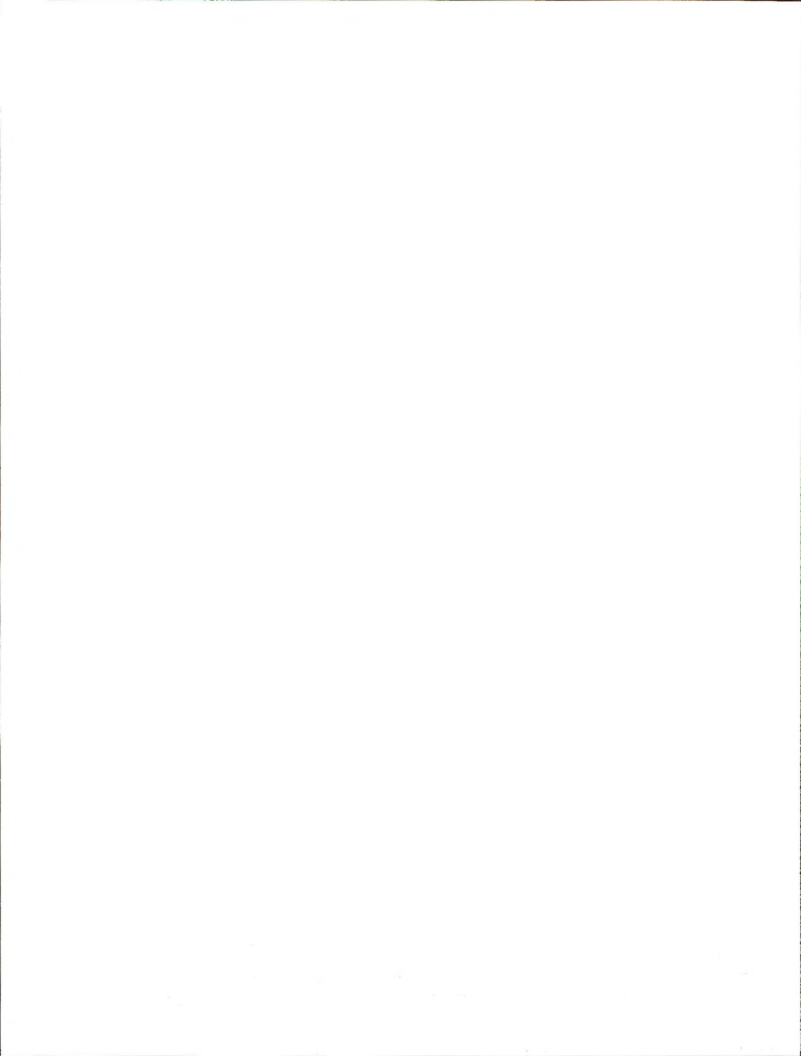
Portions of two mountain ranges make up the majority of public land (about 10,000 acres) in the south central part of Pima County—the Coyote and Baboquivari mountains. Both areas have been recommended for wilderness designation in the 1986 Phoenix Wilderness EIS. The major recreation activities center on hiking, backpacking and rockclimbing, but hunting for both big and small game is also popular. The 7,700-foot Baboquivari Peak is one of the most popular technical rockclimbing sites in Arizona. Its east face is the only multi-day grade 6 climb in Arizona.

The remaining 40 percent of the land in the RMP area is made up of scattered, isolated tracts. The majority (228,700 acres) lies north of the Sitgreaves National Forest and south of the Navajo Indian Reservation. All these tracts receive limited recreation use, primarily hunting, ORV use and rockhounding.



ENVIRONMENTAL CONSEQUENCES 4





CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

Chapter 4 discusses the environmental consequences of the four alternatives described in Chapter 2 of this RMP/EIS. Each analysis will be commensurate with the degree of expected impact. Those resource values not impacted to a significant degree are identified in Chapter 1 and are not discussed in this chapter.

GENERAL ASSUMPTIONS

In order to analyze the impacts of each alternative it was necessary to make general assumptions. These assumptions are as follows:

1. The BLM will have the funding and work force to implement the selected alternative.
2. Impacts are direct unless otherwise noted.
3. Impacts will be monitored and management adjusted as necessary, based on new data derived from monitoring.
4. Short-term impacts occur within five years and long-term impacts from five to 20 years after implementation of the plan.
5. All impacts are long-term unless otherwise noted.
6. Environmental assessments will be conducted prior to implementing any activity plans.
7. It is assumed that all disposal land is free of encumbrances and is available for disposal.
8. Land identified for disposal is assumed to go into private ownership unless otherwise noted.
9. Management of the RMP area's rangeland management program will be as described in the Final Eastern Arizona Grazing EIS (See Appendices 2 and 3).
10. Implementation of RMP decisions within wilderness study areas would only take place if those WSAs are not designated as wilderness.

IMPACTS OF ALTERNATIVE A

Effects on Land Uses

The following describes the impacts that would occur if the BLM chose to implement *Alternative A*. Impacts are identified only for those resource values that would be impacted to a significant degree.

Land Ownership. Federal land ownership patterns within the RMP area would remain unchanged under *Alternative A*. The BLM would no longer be involved in any state and private exchanges. Consolidation of the surface and subsurface estates would not be accomplished by implementing this alternative. Split estate would continue to pose management problems to both the surface and subsurface owners. Public land within the RMP area would no longer be exchanged to assist other Arizona BLM districts or resource areas to block ownership within their areas of administration.

Nearly 80 percent (723,000 acres) of the RMP area's public land would remain in a scattered or checkerboard ownership pattern. This would result in costly, inefficient management of these areas. In addition, implementing this alternative would interfere with the efforts of the Arizona State Land Department and the BLM to develop a more manageable land pattern for both agencies.

Land Available for Recreation and Other Public Purposes. Under this alternative, no new leases or patents would be issued to local governments or nonprofit organizations for public purposes under the Recreation and Public Purposes (R&PP) Act. The BLM has previously transferred more than 114,000 acres in the RMP area through the R&PPA (Tables 3-2 and 3-3).

Demand for recreation land near large cities is expected to increase as population centers continue to grow. In order to meet future demands, under *Alternative A*, local governments and nonprofit organizations would have to seek private or state land through purchase because county parks and recreation facilities would not be allowed to expand onto federal land that may now be available for park expansion. Higher acquisition costs would run into millions of dollars and limit such development in the future.

Right-of-Way Development. *Alternative A* would preclude the designation of any new utility corridors or communication sites on public land within the RMP area. All major utility system and communication site rights-of-way across public land would be considered on a case-by-case basis. Utilities and communications companies would benefit from the increased flexibility they would have in the siting of their facilities; however, separate rights-of-way would proliferate since applicants would not be required to build utility systems along predetermined routes.

Increased costs to the utility companies would also result from the preparation of separate EISs to comply with NEPA for each new major transmission line across public land.

Payments in Lieu of Taxes (PILT). Under *Alternative A*, PILT payments to counties within the RMP area would not change from the more than \$4 million paid in 1986. Federal land ownership would remain unchanged and no exchanges or sales of public land would be entertained. Therefore, PILT payments to local counties would continue to be distributed. Table 4-1 shows how PILT payments to each RMP area county would be affected by each alternative.

TABLE 4-1
Estimated PILT Losses by Alternative
Bureau of Land Management,
Phoenix District, Arizona

County	1986 PILT Payment	Loss by Alternative			
		A	B	C	D
Apache	\$255,518	\$0	\$99,298	\$99,503	\$100,423
Gila	705,689	0	0	250	250
Maricopa	924,000	0	0	0	0
Navajo	73,788	0	70,628	69,812	71,107
Pima	965,393	0	0	0	0
Pinal	401,987	0	55,191	55,965	198,334
Santa Cruz	314,888	0	118	118	2,131
Yavapai	630,299	0	0	0	0
TOTAL	\$4,271,542	0	\$225,235	\$225,648	\$372,245

Source: Bureau of Land Management, Arizona State Office.

Conclusion (Land Uses). Inefficient management of public land caused by checkerboard and split estate ownership patterns would continue. R&PPA land transfers would stop, causing delay or elimination of some county and state recreation projects. No new utility corridors or communication sites would be established, probably resulting in the proliferation of new sites and rights-of-way. No change in PILT or land use authorizations would result.

Effects on Locatable Mineral Development

Under this alternative, mineral exploration and development is expected to continue at or near current levels within the RMP area. Public land would generally remain open to mining claim location and mineral development. However, mineral development would continue to be hindered by complications

in dealing with several scattered and split estate owners and sets of regulations (federal, state, private) to mine a single property.

Conclusion (Locatable Mineral Development). Locatable mineral development will continue in a favorable environment without significant impacts.

Effects on Watershed Condition

Under *Alternative A*, no new watershed improvements would be implemented on public land. None of the RMP area's 22 Category IV allotments (refer to Appendix 3) currently in unsatisfactory watershed condition would be improved to satisfactory condition. Consequently the 22 Category IV watersheds would continue to function poorly.

The RMP area's Category II watersheds, though currently in satisfactory watershed condition, are particularly prone to accelerated erosion following surface disturbance. Because there is no watershed trend data available, it is assumed that under existing use patterns, these watersheds are not being degraded to an unsatisfactory condition. However, recreation demands on public land, including uncontrolled ORV use, are expected to increase. Under *Alternative A*, impacts from ORV use to the vulnerable soils of Category II watersheds would cause the affected watershed to be degraded to unsatisfactory conditions. As a result, accelerated erosion and increased runoff, sediment yield and salinity discharges would occur. Air and water quality would be degraded. ORV activity would cause negative impacts to 182,000 acres of public land, including approximately 74,000 acres of slightly saline, 5,000 acres of moderately saline and 6,000 acres of strongly saline soils.

Conclusion (Watershed Condition). Negative impacts from uncontrolled ORV activity would occur on about 182,000 acres of public land.

Effects on Rangeland Management

Under *Alternative A*, current stocking levels are expected to be maintained on most allotments. Some allotments currently exhibiting a downward trend in ecological condition would stop producing forage at existing levels. On these downward trending allotments, ranchers may eventually have to reduce herd sizes. The *Eastern Arizona Grazing EIS* (BLM 1986) identifies all such allotments (See Appendices 2 and 3).

For the most part, the ecological condition of range in the RMP area is stable. Therefore, under *Alternative A*, stocking rates on the typical small, medium and large ranch operations would remain at 38, 139 and 520 animal units respectively. Ranch values on these typical ranches would also be maintained at \$57,000, \$208,500 and \$780,000 respectively.

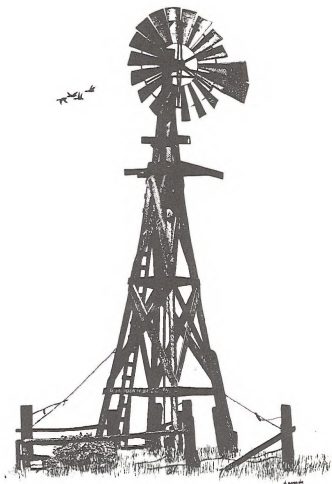
While *Alternative A* is not expected to affect ranch stocking rates or ranch values, the difficulties and management inefficiencies inherent in managing ranches containing scattered parcels of private, state and federal land would continue. Ranch operators would be required to deal with the grazing regulations of both the BLM and the Arizona State Land Department.

Conclusion (Rangeland Management). Ranch stocking rates and ranch values would be unchanged. Checkerboard land ownership would, however, continue to complicate ranch management.

Effects on Areas of Cultural Significance

Under *Alternative A*, the BLM would continue active surveillance of cultural resource properties through cooperative arrangements on the Zuni-Hardscrabble, Snowflake-Mesa Redonda, Upper Little Colorado and Perry Mesa areas. However, six other significant cultural areas would not benefit from aggressive protective measures under this alternative and would therefore be subject to vandalism. Negative effects of erosion and public visitation (resulting in inadvertent adverse effects) would continue. Such deterioration, if unchecked, would result in the loss of significant information and public values to at least 390 individual sites. Opportunities to acquire and manage additional cultural properties within the RMP area's 10 significant areas would be denied.

Rights-of-way would continue to be approved within the 10 significant cultural areas on a case-by-case basis. Existing laws and regulations call for recovering the cultural information in the 10 areas through mitigation. However, such development would negatively affect those cultural resources that become more accessible to the public as a result of utility and communication site development. In the cases of the Perry Mesa Archaeological District, Cocoraque Butte in the Avra Valley and Santa Ana del Chiquiburitac, such utility system development would constitute negative visual impacts to *National Register*-listed properties.



Under *Alternative A*, off-road vehicular travel would continue to negatively impact archaeological sites in the 10 significant cultural areas. Direct vehicular damage occurs when motorized vehicles run over cultural properties. Artifacts are broken, lost or moved out of context, resulting in the loss of information value. Table 4-2 shows how the RMP area's 10 significant cultural areas would be impacted under alternatives A through D.

Conclusion (Areas of Cultural Significance). Continuation of current management would benefit four of the RMP area's 10 significant cultural areas. Negative effects of public visitation, natural degradation and vandalism would continue on the remaining six areas and result in the loss of 10 to 25 percent their information, conservation and public values.

TABLE 4-2
Loss of Cultural Values in Ten Significant Areas by Alternative
Bureau of Land Management, Phoenix District, Arizona

Cultural Area	Deterioration Type*	Alternative			
		A	B	C	D
Santa Ana Chiquiburitac	I	2%	1%	1%	2%
	II	2	0	0	2
	III	0	0	0	0
	IV	1	1	1	1
	TOTAL	5%	5%	5%	5%
Avra Valley	I	3%	1%	1%	3%
	II	2	0	0	2
	III	2	2	2	2
	IV	3	1	1	3
	TOTAL	10%	5%	5%	10%
Reymert Townsite	I	6%	1%	1%	10%
	II	4	0	0	6
	III	3	0	0	5
	IV	7	3	3	9
	TOTAL	20%	5%	5%	30%
Middle Gila Archaeological Zone	I	8%	1%	1%	10%
	II	4	2	2	5
	III	4	1	1	5
	IV	4	1	1	5
	TOTAL	20%	5%	5%	25%
Perry Mesa Archaeological District	I	6%	1%	2%	9%
	II	3	1	3	3
	III	4	0	3	5
	IV	2	2	2	3
	TOTAL	15%	5%	10%	20%
Lower Agua Fria Valley	I	10%	10%	10%	10%
	II	5	5	5	5
	III	5	5	5	5
	IV	5	5	5	5
	TOTAL	25%	25%	25%	25%
Lower Texas Gulch	I	4%	4%	4%	4%
	II	2	2	2	2
	III	1	1	1	1
	IV	3	3	3	3
	TOTAL	10%	10%	10%	10%
Zuni-Hardscrabble Region	I	7%	11%	11%	11%
	II	3	4	4	4
	III	2	2	2	2
	IV	3	3	3	3
	TOTAL	15%	20%	20%	20%

(Continued on next page)

TABLE 4-2 (Continued)

Loss of Cultural Values by Alternative in Ten Significant Areas over 20 Years
Bureau of Land Management, Phoenix District, Arizona

Cultural Area	Deterioration Type*	Alternative			
		A	B	C	D
Upper Little Colorado Region	I	7%	11%	11%	11%
	II	4	4	4	4
	III	2	3	3	3
	IV	2	2	2	2
	TOTAL	15%	20%	20%	20%
Snowflake-Mesa Redonda Region	I	10%	13%	13%	13%
	II	5	7	7	7
	III	2	2	2	2
	IV	3	3	3	3
	TOTAL	20%	25%	25%	25%

*Deterioration Type: I. Vandalism
II. ORV
III. Utility Corridor/Communication Site
IV. Natural Processes

NOTE: Value estimates are based on the judgment of the RMP Team Archaeologist and are intended to illustrate relative impacts.

Source: Phoenix District files.

Effects on Vegetation

Under *Alternative A*, the continuation of current management would result in a static trend on five and a downward trend on four allotments slated for special management in the other alternatives. The rate of decline on the downward trending allotments would depend on resistance of the range sites to change. The average ecological condition of these downward trending allotments is expected to be reduced to poor over the next 20 years.

Conclusion (Vegetation). Implementing *Alternative A* would allow a downward trend to continue on four grazing allotments covering 140,305 acres.

Effects on Riparian Habitat

Under *Alternative A*, all 94 miles (Table 4-3 and Figure 4-1) and 1,070 acres of public riparian habitat would be retained in federal ownership but would not be actively managed. Appendix 7 shows those riparian areas that would be retained under each alternative. Under *Alternative A*, the condition of three riparian areas currently exhibiting a downward trend would be reduced from fair to poor. Table 4-3 and Figure 4-2 show the expected condition of each riparian area by alternative.

Conclusion (Riparian Habitat). All 94 miles and 1,070 acres would be retained but not actively managed to restore or improve condition. Existing condition and trends would decline in three riparian areas (9.1 miles of habitat).

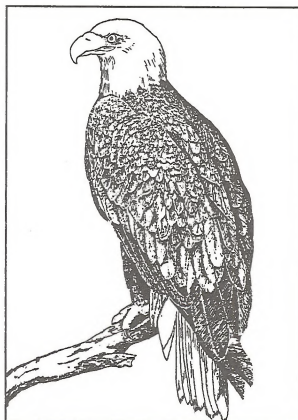


TABLE 4-3
Projected Ecological Condition of Riparian Habitat by Alternative
Bureau of Land Management, Phoenix District, Arizona

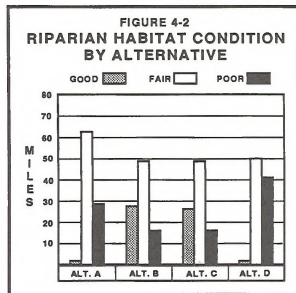
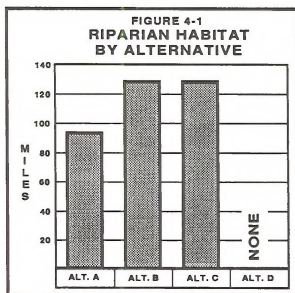
Name Location	Habitat Miles (Acres)	Current Condition	Alternative			
			A	B	C	D
Chevelon Cr. T. 16 N., R. 16 E.	1.0	Good	Good	Good	Good	Good
Clear Cr. T. 17 N., R. 15 E.	0.5	Good	Good	Good	Good	Good
Silver Cr. T. 16 N., R. 22 E.	1.7	Fair	Poor	Poor	Poor	Poor
Little Colorado R. Apache-Navajo counties	6.7	Fair	Poor	Poor	Poor	Poor
Agua Fria R. T. 8 to 13 N., R. 1-3 E.	7.4	Fair	Fair	Good	Good	Poor
Arrastre Cr. (Bumble Bee Cr. Tributary) T. 9 N., R. 2 E.	3.1	Good	Fair	Good	Good	Fair
Bumble Bee Cr. T. 9 to 11 N., R. 2 E.	7.7	Fair	Fair	Good	Good	Fair
Hassayampa R. T. 9 to 10 N., R. 3 W.	13.1	Fair	Poor	Fair	Fair	Poor
Indian Wash T. 11 N., R. 3 E.	0.5	Fair	Fair	Fair	Fair	Fair
Larry Cr. T. 9 N., R. 3 E.	0.4	Excel	Excel	Excel	Excel	Excel
Castle Cr. (Bumble Bee Cr. Tributary) T. 9½ N., R. 2 E.	0.9	Fair	Fair	Good	Good	Fair
Sycamore Cr. T. 11 N., R. 3 E.	0.8	Fair	Fair	Good	Good	Fair
Cottonwood Gulch T. 8 N., R. 2 E.	0.2	Fair	Fair	Good	Good	Fair
Antelope Cr. T. 11 N., R. 2 E.	2.7	Poor	Poor	Poor	Poor	Poor
Chalky Cr. T. 6 N., R. 1 W.	0.4	Poor	Poor	Poor	Poor	Poor
Gila R. T. 4 S., R. 11-13 E.	15.0	Fair	Fair	Fair	Fair	Fair
Walnut Cyn. T. 3 S., R. 12 E.	1.2	Fair	Fair	Good	Good	Poor
White Cyn. T. 3 S., R. 12 E.	3.1	Fair	Fair	Good	Good	Poor
Tule Cr. T. 8 N., R. 1 E.	1.0	Fair	Fair	Good	Good	Fair
Martinez Cyn. T. 3 S., R. 12 E.	0.9	Good	Fair	Fair	Fair	Fair
Galena Gulch T. 13 N., R. 1 E.	0.2	Fair	Fair	Fair	Fair	Fair
Boulder Cr. T. 8 to 9 N., R. 1 E.	4.2	Fair	Fair	Fair	Fair	Fair
Humbug Cr. (Agua Fria R. Tributary) T. 8-9 N., R. 1 E.	8.0	Fair	Fair	Fair	Fair	Fair
Castle Cr. (Agua Fria R. Tributary) T. 7-8 N., R. 1-2 W.	3.1	Poor	Poor	Poor	Poor	Poor
Oak Cr. T. 9 N., R. 2-3 W.	3.5	Fair	Fair	Fair	Fair	Fair

(Continued on next page)

TABLE 4-3 (Continued)
Projected Ecological Condition of Riparian Habitat by Alternative
Bureau of Land Management, Phoenix District, Arizona

Name Location	Habitat Miles (Acres)	Current Condition	Alternative			
			A	B	C	D
Cherry Cr. T. 10 N., R. 3 W.	0.2	Good	Good	Good	Good	Good
Minnehaha Cr. T. 10 N., R. 3 W.	0.5	Poor	Poor	Poor	Poor	Poor
Spring Cr. T. 10 N., R. 3 W.	0.8	Fair	Fair	Fair	Fair	Fair
Arrastre Cr. (Hassayampa R. Tributary) T. 11 N., R. 3 W.	0.7	Fair	Poor	Poor	Poor	Poor
Cottonwood Cr. (Boulder Cr. Tributary) T. 8 N., R. 1 E.	0.6	Fair	Fair	Fair	Fair	Fair
Cottonwood Cr. (Hassayampa R. Tributary) T. 10 N., R. 3 W.	0.6	Fair	Fair	Fair	Fair	Fair
Cocio Wash T. 12 S., R. 9 W.	0.3	Poor	Poor	Poor	Poor	Poor
Government Spr. Wash T. 10 N., R. 2 E.	0.4	Fair	Fair	Fair	Fair	Fair
Slate Cr. T. 8 N., R. 2 E.	0.4	Fair	Fair	Fair	Fair	Fair
Rock Cr. T. 8 N., R. 2 W.	0.2	Fair	Fair	Fair	Fair	Fair
Banty Cr. T. 8 N., R. 2 W.	1.0	Fair	Fair	Fair	Fair	Fair
Zion Reservoir T. 14 N., R. 27 E.	(280)	Fair	Fair	Fair	Fair	Fair
Gila R. — West T. 1 N., R. 1 W.	(440)	Fair	Fair	Fair	Fair	Fair
Picacho Reservoir T. 6 S., R. 8 E.	(350)	Fair	Fair	Fair	Fair	Fair

Source: Phoenix District files.



Effects on Special Status Plants

Peebles Navajo Cactus — *Pediocactus peeblesianus* var. *peeblesianus* — Federally listed — Endangered. Under *Alternative A*, the BLM would retain and manage about 640 acres of habitat with nearly 200 documented Peebles Navajo cactus plants (20 percent of the known population) and an additional 300 acres of suitable habitat. The BLM would manage the habitat to protect this population. Table 4-4 and Figure 4-3 show the amount of special status plant habitat proposed for federal ownership under each alternative.

The BLM does not currently administer sufficient habitat to provide for recovery and delisting of the species. Under *Alternative A*, no land acquisitions of Peebles Navajo cactus habitat are anticipated. The small population on BLM land would be susceptible to localized environmental influences, thereby increasing the risk of the plants' extinction.

Conclusion (Peebles Navajo Cactus). Retention of currently occupied public land habitat (20 percent) would maintain the species, but populations on non-public land (80 percent) would disappear.

TABLE 4-4

Special Status Plant Habitat Acreages by
Alternative
Bureau of Land Management,
Phoenix District, Arizona

Plant	A	Alternative		D
		B	C	
Peebles Navajo cactus	640	3,740	5,665	0
Tumamoc globeberry	119,200	116,660	154,400	0
Nichol Turk's head cactus	1,960	3,100	4,580	0
Thornber fishhook cactus	30,000	34,000	75,000	0
Sword milkvetch	640	640	640	0
Paperspined cactus	40,000	0	0	0

Acreages include state and private land recommended for acquisition.

Source: Phoenix District files.

Tumamoc Globeberry — *Tumamoca macdougalii* — Federally listed, Endangered. Under *Alternative A*, the BLM would retain all of its 6,860 acres of known habitat and 119,200 acres of moderate to high potential habitat (Table 4-4). The known habitat contains at least 48 Tumamoc globeberry plants (about 2.5 percent of the known population of *T. macdougalii*). The significance of this small percentage is increased because of the small number of federally protected populations. The Bureau of Reclamation is actively involved in acquiring some habitat for the species as mitigation for losses caused by the Central Arizona Project canal. One population is on Forest Service land and two localities are known on National Monuments land. It is likely that other plants grow on public land in the Silver Bell and Avra Valley areas.

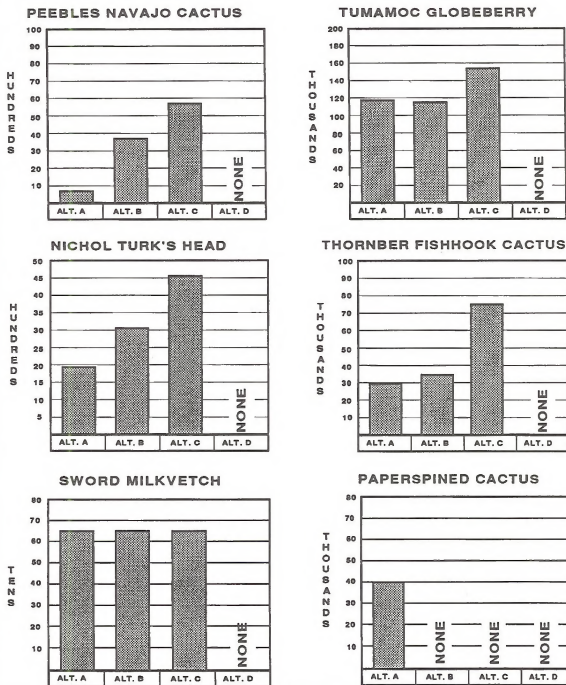
Managing the species on small, isolated parcels of BLM land is difficult. Under *Alternative A*, long-term secondary impacts from the expected development of adjacent nonfederal land may destroy some plants, regardless of habitat retention and intensive management on adjacent public land.

Development around Tucson will likely destroy plants on private and state land. Pima County, the City of Tucson and the University of Arizona are protecting Tumamoc globeberry plants on land near Tucson. Otherwise there is no active management for the species on nonfederal land and under *Alternative A* the species would probably retain its endangered status.

Conclusion (Tumamoc Globeberry). Retaining all BLM land habitat would have an overall positive impact because 2.5 percent of the known populations would be protected under the provisions of the *Endangered Species Act* (ESA). Even so, some plants growing on small, isolated public parcels near Tucson would eventually be lost due to habitat disturbance caused by adjacent land developments.



FIGURE 4-3
SPECIAL STATUS PLANT HABITAT
BY ALTERNATIVE
(ACRES)



Nichol Turk's Head Cactus — *Echinocactus horizontalis* var. *nicholii* — Federally listed — Endangered. Under *Alternative A*, the BLM would manage 1,960 acres representing 50 percent of the known habitat for the Turk's head cactus in the Waterman Mountains. Retention of public land would help federal recovery plan efforts as this population would be protected by the ESA.

Unrestricted ORV activity would cause both short-term and long-term negative impacts to this endangered cactus on public land. Failure to implement a mineral withdrawal would result in some habitat destruction from mining exploration and development. These activities would cause long-term population declines. Recovery plan efforts to increase managed populations would be hindered by lack of secure habitat.

Conclusion (Nichol Turk's Head Cactus). Although 50 percent of the populations would be federally protected, expected future habitat damage from ORV and mining activity would make recovery and delisting of the species unlikely.

Thornber Fishhook Cactus — *Mammillaria thornberi* — Federal Category 2 — Candidate. Under *Alternative A*, the BLM would retain about 8,000 acres of occupied habitat with 200 documented plants of this species and an additional 22,000 acres of suitable habitat. The populations on public land represent about one percent of the estimated number of plants in the U.S.

Opportunities for management of the species on small, isolated parcels of BLM land is severely limited; therefore, under *Alternative A*, the eventual decline and loss of some plants is expected because of secondary impacts from development of adjacent private land. Opportunities for intensive management of populations on larger tracts of public land could offset these losses over the long term.

Conclusion (Thornber Fishhook Cactus). Retention of 8,000 acres of occupied habitat would offer little benefit to the species since the BLM administrators less than one percent of the estimated population.

Sword Milkvetch — *Astragalus xiphoides* — Federal Category 1 — Candidate. Under *Alternative A*, the BLM would retain a 640-acre parcel of land with at least 360 plants of this species. The only other known sites are on U.S. Park Service land (one) and on private land (three). The BLM population is the only one being monitored. Two of the private parcels are expected to be developed in the near future.

BLM retention of one tract will help preserve the species, but would not change the plants' candidate status. The species will probably be listed as threatened or endangered in 1989 (personal communication, USFWS). The expected loss of populations on private land would restrict the known range of the species to two locations on federal land, greatly increasing risks to the species due to localized environmental factors.

Conclusion (Sword Milkvetch). Retaining 640 acres of occupied habitat would help conserve the species but would not prevent federal listed as threatened or endangered.

Paperspined Cactus — *Pediocactus papyracanthus* — Federal Category 2 — Candidate. Under *Alternative A*, the BLM would retain 40,000 acres of potential habitat that includes 3,840 acres of known habitat containing six of the 16 documented populations of this species in Arizona. Opportunities for management on BLM land would continue to be limited by the checkerboard landownership pattern in Navajo County.

Initial monitoring studies indicate this species may be declining in Arizona because of intensive grazing practices. Populations of sufficient size exist on federal land in New Mexico to make it unlikely that the species would be listed as federally threatened or endangered in the near future, but population trends there are uncertain over the long term. Thus, retaining populations in Arizona may become more important for the species status over time.

Conclusion (Paperspined Cactus). The BLM would retain 40,000 acres of habitat including 3,840 acres containing six of the 16 documented localities in Arizona. Although checkerboard ownership in the area complicates management and protection of habitat, retention would be a slight benefit to the species.

Effects on Wildlife

Gila Topminnow — *Poeciliopsis occidentalis occidentalis* — Federally Endangered. Under *Alternative A*, Tule Creek would remain the only site inhabited by Gila topminnows in the RMP area. There would be no further introduction of topminnows into suitable sites nor would additional sites be analyzed for suitability.

Flooding in the Tule Creek drainage is likely to, as it has in the past, eliminate the existing population and under *Alternative A*, the population would not be replaced. The Tule Creek population is one of several reproducing populations on public, private and Forest Service land in Arizona.

Recovery efforts for the Gila topminnow would be negatively impacted by the loss of a stable population in Tule Creek. Under *Alternative A*, the fish would also not be introduced into eight known suitable sites or into sites identified in the future. The BLM, AG&FD and the USFWS consider topminnow introductions into 20 sites within the Phoenix District to be the best method of mitigating the 1981 loss of the natural population on public land in Cocino Wash. Therefore, under *Alternative A*, this goal would be more difficult to achieve.

Conclusion (Gila Topminnow). Populations lost to flooding would not be replaced as in the past, thus affecting federal efforts to recover the species. These efforts will be set back further by not introducing the fish into eight suitable sites.

Desert Pupfish — *Cyprinodon maculioicus* — Federally Endangered. Under *Alternative A*, the Mesquite Spring population of desert pupfish (14 percent of the state's population) would remain the only population in the RMP area. Pupfish would not be introduced into four additional sites identified as suitable habitat, thereby preventing an 85 percent increase in the total number of inhabited sites in Arizona.

Conclusion (Desert Pupfish). The BLM's objective to maintain the Mesquite Spring population is met but the federal recovery effort is set back by not reintroducing the fish into four additional suitable sites.

Little Colorado River Spinedace — *Lepidomeda vittata* — Federally proposed — Threatened. Under *Alternative A*, 1.7 miles or 1.5 percent of the total Little Colorado River spinedace habitat would be retained and managed under federal protection of the *Endangered Species Act*. Comprising eight percent of the total Silver Creek drainage, this habitat would function as a source of spinedace during future recovery efforts. Retention of the habitat would contribute to the maintenance of Little Colorado River spinedace in one out of five major drainages supporting the species.

Conclusion (Little Colorado River Spinedace). About 1.5 percent of total habitat (eight percent of the Silver Creek habitat) would remain under federal protection. Retaining the only federally protected habitat along Silver Creek would contribute to maintaining the species in the drainage.

Desert Bighorn Sheep — *Ovis canadensis mexicana* — State-listed. Under *Alternative A*, public land comprising 69 percent (39,200 acres) of the RMP area's crucial desert bighorn sheep habitat in the Silver Bell-West Silver Bell would be retained under federal ownership but would not be actively managed to protect and improve habitat for the existing population of 50 to 60 bighorn sheep (See Table 4-5 and Figure 4-4).

All crucial habitat would remain open to vehicular use. Both off-road travel and use of existing roads and trails are expected to increase, which would interfere with bighorn foraging on bajadas and their travel routes connecting the more rugged portions of the habitat. Increased off-road travel near Ragged Top would interfere with bighorn access to and use of the 800-acre lambing area and adjacent habitat.

Limited disturbance of bighorn habitat would continue at the existing Confidence Peak communication facility. Construction of additional rights-of-way and the improved access for ORVs in the existing utility corridor west of the West Silver Bell Mountains would conflict with bighorn movement between crucial habitat and the Tohono O'odham Reservation.

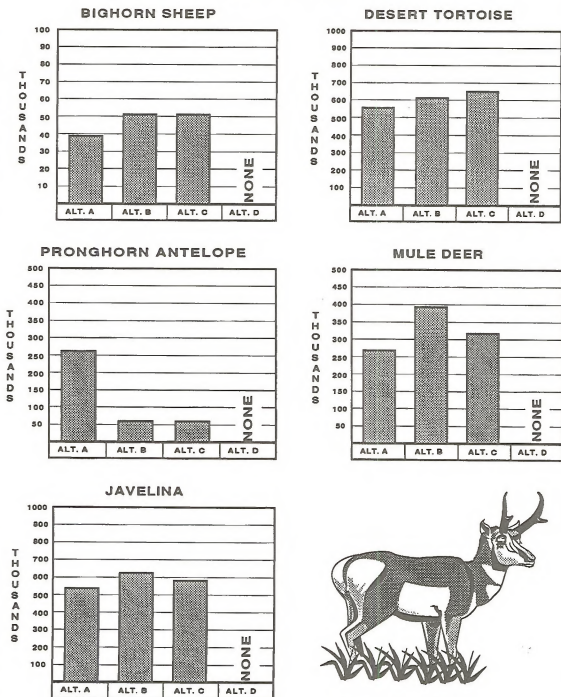
Conclusion (Desert Bighorn Sheep). The current population would decline 50 percent from the current 50 to 60 animals. The BLM's objective to maintain a viable population and increase the capability of the habitat would not be met.

TABLE 4-5
Wildlife Habitat Acres
by Alternative
Bureau of Land Management,
Phoenix District, Arizona

Species	Alternatives			
	A	B	C	D
Bighorn Sheep	39,200	50,570	50,570	0
Desert Tortoise	557,300	608,800	647,200	0
Pronghorn				
Sycamore Mesa	9,100	62,800	62,800	0
Apache-Navajo	216,200	0	0	0
Mule Deer	273,000	387,600	320,000	0
Javelina	526,000	618,000	579,000	0

Source: Arizona Game and Fish Department and Phoenix District files.

**FIGURE 4-4
WILDLIFE HABITAT
BY ALTERNATIVE
(ACRES)**



Desert Tortoise — *Gopherus agassizi*. Under *Alternative A*, public land comprising 14 percent (557,300 acres) of the RMP area's desert tortoise range would be retained but would not be actively managed to protect and improve desert tortoise. About 10 percent (55,700 acres) of the public land within the range of the desert tortoise is considered important. Under *Alternative A*, all this important habitat would be retained, but would not be inventoried to identify crucial areas and known populations would not be monitored.

Vehicular travel is expected to increase in the RMP area, impacting habitat as well as tortoises. Vehicles crush tortoise cover sites as well as the tortoises themselves, damage and destroy food sources and interrupt foraging behavior. A study by Bury (1978) showed reductions in numbers and weight of tortoises in moderately to heavily used off-road desert areas.

Conclusion (Desert Tortoise). Public land within the range of the species would be retained but not actively managed to protect important habitat and identify crucial habitat. Localized downward population trends would be expected to occur on 10 percent (83,000 acres) of public land habitat.

Pronghorn — *Antilocapra americana*. Under *Alternative A*, public land on Sycamore and Perry Mesas would be retained (12 percent of the total pronghorn habitat). Management would not emphasize the protection and improvement of habitat for pronghorns. Most of the public land is in fair to good ecological condition (USDI, *BLM Eastern Arizona Grazing DEIS*, 1985) and would be expected to continue supporting the existing pronghorn population.

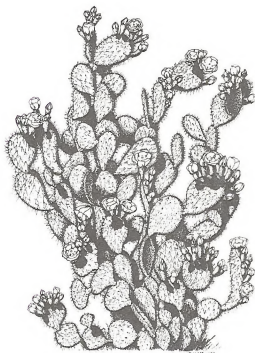
About 24 percent of the travel corridor on public land between the Sycamore Mesa and Chino Valley habitats would continue providing habitat as long as adjacent state and private land continues to do so. Movement through the corridor is becoming increasingly difficult for the pronghorn because of development on private land. The loss of the travel would cause geographical isolation of the mesa and valley populations and subsequent loss of genetic diversity.

Five percent of the total pronghorn habitat within Apache and Navajo counties is public land and under *Alternative A* would continue providing high priority habitat. Public land currently provides two percent of the pronghorn habitat in areas where private land is now being subdivided or is likely to be developed in the near future. As subdivisions become more numerous and human occupants settle in, the habitat would lose value to pronghorn and would eventually be abandoned by the animals.

Conclusion (Pronghorn). Sycamore Mesa would continue to support populations, but habitat capability would not increase. The Sycamore Mesa-Chino Valley travel corridor would lose value as it becomes restricted due to expected land developments. Two percent of the total habitat in Apache and Navajo counties would eventually be abandoned as a result of subdivision development, but the remaining public land (five percent of the total) would continue to provide high priority habitat.

Mule Deer — *Odocoileus hemionus*. Under *Alternative A*, part of the public land retained is 16 percent (273,000 acres) of the RMP area's total habitat supporting medium to high density deer populations. About one-fourth of this public land habitat (four percent of total habitat) is near areas expected to be developed in the near future. Such development would negatively influence deer access to and use of adjacent public land. Vehicular travel throughout deer habitat is expected to increase and off-road travel would result in habitat damage, harassment of the deer and downward population trends on one-fourth of the public land habitat.

Conclusion (Mule Deer). Four percent (68,000 acres) of the RMP area's total medium to high density habitat would be lost due to downward trends caused by land development. About 12 percent (205,000 acres) of the total public land habitat would continue supporting medium to high density deer populations.



Javelina — *Dicotyles tajacu*. *Alternative A* would retain about 19 percent (526,600 acres) of the RMP area's public land with medium to high density javelina populations. About 87 percent (458,000 acres) of this public land habitat would continue supporting current populations. About 13 percent (68,000 acres) of the public land habitat is in areas that are expected to be developed. Development of adjacent private land would temporarily increase the numbers of javelina using public land and would result in increased instances of nuisance animals foraging on private land. Javelina numbers would ultimately decrease, since the habitat would not continue to support the increased numbers.

Vehicular travel throughout javelina habitat is expected to increase and off-road travel would result in habitat damage and harassment of javelina. Heavy off-road use adjacent to development areas would result in localized decreases in javelina populations.

Conclusion (Javelina). Public land comprising 17 percent (475,000 acres) of the RMP area's total habitat would continue to support medium to high density populations. Trends would decrease on two percent (56,000 acres) of public land habitat due to impacts from the development of adjacent land and increased off-road travel.

Effects on Wild, Free-Roaming Burros

Under *Alternative A*, no herd management plan would be developed to provide direction for managing the RMP area's historic burro herd.

Although burros would remain on 78,380 acres of public land authorized for their use near Lake Pleasant, urbanization would require the removal of some burros from nonpublic land in the area. Without ORV designations to restrict off-road travel into remote, roadless areas, harassment incidents which tend to scatter and disrupt the herd would continue. The burro herd is expected to decline slowly from the present 60 animals to fewer than 30 over the next 20 years unless protective rules are initiated.

Conclusion (Wild, Free-Roaming Burros). The Lake Pleasant herd would decline 50 percent from 60 animals to 30 over the long term.

Effects on Recreation Use

Under *Alternative A*, existing opportunities for unstructured and dispersed recreation activities would be maintained, but no efforts would be made to enhance these opportunities or contribute to the development of new activities or recreation facilities and no recreation management areas would be established.

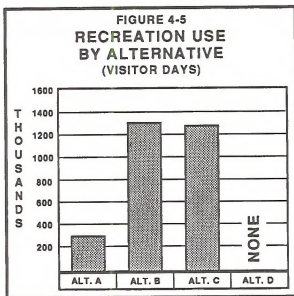
No new R&PP leases would be granted nor Cooperative Recreation Management Areas identified. Popular recreation land close to metropolitan areas would not be intensively managed by local governments or cooperatively with the BLM for urban-based recreation use (Table 4-6 and Figure 4-5).

Purchase or lease of private/state land would probably be too expensive for local governments to develop urban park facilities. Without intensive management, the ability of public land near urban areas to provide satisfactory recreation opportunities would decrease.

TABLE 4-6
Projected Long-Term Recreation Visits Per Year — *Alternative A*
Bureau of Land Management, Phoenix District, Arizona

Use Areas	Motorized		Camping	Fishing	Hunting	Other	Totals
	Travel						
Baboquivari/Coyote Mtns.	50	250		0	50	450	800
Silver Bell/Sawtooth Mtns.	17,340	4,500		0	7,220	11,050	40,110
Picacho Mtns./Reservoir	450	225		150	100	400	1,325
Gila River Canyons	12,400	2,700		150	15,000	19,900	50,150
Black Canyon Area	9,275	3,000		0	1,000	11,800	25,075
Lake Pleasant Region	42,300	34,000		35,000	16,230	28,000	155,530
Scattered tracts	4,350	500		0	1,000	2,900	8,750
TOTALS	86,165	45,175		35,300	40,600	74,500	281,740

Source: Phoenix District files.



No attempt would be made to acquire legal access; therefore, recreationists would continue to experience difficulties getting to the Picacho, Coyote, Baboquivari and Sawtooth mountains. Over the long term, recreation use of these areas would decline.

A major expansion of Maricopa County's Lake Pleasant Regional Park would be constrained somewhat because the limited public land near the lake would not be available for park development. Maricopa County would have to continue leasing state land to continue park operations, with fees reaching millions of dollars annually over the long term. In the worst case analysis, the county may be forced to consider closing the park because of excessive operating expenses and lack of space for new facilities.

"Spillover" use from the overcapacity of Lake Pleasant park facilities would spread out on public land (6,880 acres) near the park. No intensive management facilities would be furnished for these visitors. Makeshift visitor camps would surround the Lake Pleasant area. Problems relating to sanitation and unsupervised vehicle traffic would result. Law enforcement personnel would not be available on-site, although law enforcement needs are expected to increase. Without intensive management, the ability of public land near Lake Pleasant to provide satisfactory recreational opportunities would decline.

Visitor use levels on public land away from Lake Pleasant are anticipated to increase by an average of 139 percent over current levels because of population growth and expansion of the Phoenix metropolitan area. Public land would continue to provide unstructured recreation opportunities although access to some currently little-used areas may be restricted.

Under this alternative, the Black Canyon area's 33,410 acres would continue to provide unstructured and diverse recreation opportunities. Visitor use levels would increase in all recreation types except hunting because of population growth, but the greatest increase is anticipated in hiking, backpacking, backcountry camping and equestrian use. Hunting opportunities would decline due to increased human activity in the area.

The 153,000-acre Gila River Canyons area would continue to provide unstructured and undeveloped dispersed recreation opportunities. The types and patterns of most recreation use, except nonmotorized, would remain similar to that of the present, with visitor use gains averaging 11 percent, mainly from population growth. Nonmotorized travel would experience the greatest visitor use gains (100 percent) from the Trans-Arizona Trail through the area. Hiking, primitive camping and backpacking use would all become popular along this north-south trail.

The 10,040-acre Picacho Mountains/Picacho Reservoir area would continue to provide unstructured and dispersed recreation opportunities with the types, patterns and level of recreation use similar to that of the present. Visitors would experience increasing ingress/egress problems due to a lack of legal access, however.

The Sawtooth Mountains-Silver Bell Mountain complex, 102,000 acres, would continue to provide undeveloped and dispersed types of recreation opportunities, but the quality of those opportunities would decline because of unmanaged visitor use. Also, the types and patterns of recreation use would change over the long term from those of the present. Increased development activity would cause declines in the quality and quantity of recreation activities. ORV use and vehicle-based recreation activities would experience the greatest increase in visitor use numbers.

The types, patterns and level of visitor use in the Coyote and Baboquivari mountains would remain similar to those of the present, providing visitors can continue to cross private and state land to reach this public land. Closure of this land to all public use is possible over the long term since no access rights or easements would be pursued by the BLM. High quality rockclimbing, backpacking, hiking and sightseeing opportunities (totaling 800 visitor use days) could be lost if public access becomes unavailable.

Scattered Tracts. The types, patterns and level of visitor use would remain unchanged from those of the present because population increases are not anticipated near most scattered tract public land.

Conclusion (Recreation Use). Due to increasing heavy public use, the quality of recreation experiences in the Lake Pleasant and Sawtooth/Silver Bell Mountain regions would decline due to unsupervised visitor use and ORV traffic. Recreation opportunities elsewhere would generally remain the same. The needs of local governments to provide intensively managed recreation sites near urban populations would not be met. Since public land would not be available for R&PP and CRMA uses, nine parks and recreation areas would not be developed or expanded.

IMPACTS OF ALTERNATIVE B

Effects on Land Uses

Land Ownership. Under *Alternative B*, total public land ownership in the RMP area would be reduced 12 percent from 911,343 acres of federal surface estate to 804,671 acres of federal surface estate, assuming that all state land recommended for acquisition is acquired. However, the public land that is retained and acquired would form a more manageable land pattern. Consolidation of land in the seven resource conservation areas (RCAs) would improve management efficiency and thus reduce management costs.

Under *Alternative B*, the disposal of 381,862 acres by exchange and 45,236 acres by exchange or sale would eliminate a fragmented public land pattern that is difficult and inefficient to manage. Also, consolidation of federal surface and subsurface estates would eliminate problems in managing split estate land.

Land Available for Recreation and Other Public Purposes. *Alternative B* identifies a total of 3,781 acres as suitable for transfer to state and local government entities or agencies under the R&PP Act (Table 2-5). This land would be available for special public purposes at little or no cost. State and local governments would benefit from the low cost land available for parks, recreation sites and wildlife protection areas.

Right-of-Way Development. *Alternative B* identifies five communication sites (Table 2-2) on 315 acres and limits communication site development within the RCAs to designated areas. Existing users on non-designated facilities would be allowed to remain. Communication site users on land identified for disposal would be allowed to stay until the land has been exchanged or sold and then could renegotiate terms with the new owners or remove their facilities when leases expire.

Designating communication sites would reduce the proliferation of these facilities and allow for their orderly development, eliminating user conflicts which often reduce operating efficiency.

Seven utility corridors are identified under *Alternative B*, but only within the RCAs because the scattered land pattern outside the RCAs severely limits the usefulness of such designations. In addition, most public land outside the RCAs is identified for disposal; therefore, upon disposal, right-of-way applicants wishing to cross this land would need to deal with new landowners. This may increase the cost of siting major utility system rights-of-way outside the RCAs. Restricting utility system routings within the RCAs to those corridors may increase the cost of developing utility systems as the corridors may not always follow the most cost-effective route.

New utility systems would be allowed only within the designated utility corridors, thus eliminating a proliferation of rights-of-way across areas with sensitive resources. The designated corridors would also decrease the repeated analysis of alternative routes during the NEPA process.

Under *Alternative B*, the Black Canyon corridor would be expanded to two miles in width, reducing or eliminating any further development across Perry Mesa and its important cultural resources. The Black Canyon corridor follows rougher topography than does the Perry Mesa route; thus, construction cost would be higher along the Black Canyon route. In addition, the potential for overcrowding and interference is higher along the Black Canyon corridor.

Under *Alternative B*, land use authorizations would be precluded or restricted on 14,691 acres within six ACECs, resulting in reduced right-of-way flexibility and increased construction costs for utility rights-of-way. Power distribution rights-of-way in three ACECs (Waterman, White Canyon, Perry Mesa) would be precluded under this alternative.

All existing and new land use authorizations on land outside RCAs would continue to be authorized and allowed until the land is identified specifically for transfer. Upon transfer, terms and conditions would have to be renegotiated with the new owners, which could increase the costs of holding these land use authorizations.

Payments in Lieu of Taxes (PILT). *Alternative B* would result in a net loss of 430,240 acres of public land eligible for PILT to four of the eight counties within the RMP area. Table 4-1 shows estimated losses in PILT by county under *Alternative B*.

Decreases in PILT may be partially offset by the 44,440 acres that have been identified for private sale

or exchange. If sold, these acres would be added to the tax rolls of the counties in which they are located.

Counties would not receive PILT on land acquired from the state. The PILT Act of 1976 specifically prohibits payments for tax exempt land (but not donated land) acquired from state or local governments.

Conclusion (Land Uses). Implementation would best meet the BLM's land tenure objectives although public land acres would be reduced 12 percent. Consolidating surface and subsurface ownership into seven RCAs would improve management efficiency and reduce costs. Transferring five parcels (3,781 acres) under the R&PPA would meet local governments' needs for low cost public land. Land use authorizations would be precluded on 14,691 acres in six ACECs. Placement of seven utility corridors and five communication sites would meet utilities' needs but increase future construction costs somewhat. There would be a net loss of about \$215,000 in annual PILT to four counties.

Effects on Locatable Mineral Development

Disposal of large amounts of federal subsurface estate would reduce the level of minerals exploration and development on this land because there would be no free access to minerals such as allowed under the *Mining Law of 1872*. Mining on federal land under this law is generally less expensive than is such mining on state and private land. Overall, a 50 percent reduction in notices and a 75 percent reduction in the number of mining plans of operations (MPOs) is expected under this alternative.

Minerals-related activity on the flanks of the Bradshaw Mountains is greater than anywhere else in the planning area. Much of this area of interest lies within the bounds of the proposed Black Canyon RCA. Mineral development in this area would benefit because mineral developers would be required to deal with the laws and regulations of only one agency. A significant level of activity has been established outside the proposed RCA boundaries in an area between Prescott and Cordes Junction where proposed land disposals under *Alternative B* would lead to an 85 percent decline in mineral exploration and development.

Under *Alternative B*, mineral activity on land disposed of in the Goldfield and Superstition mountains area is expected to stop altogether. The new landowners would likely be more interested in residential and/or commercial development than marginal mineral development.

In the Miami-Globe area the impact of disposal would be less significant because residential development is currently less likely than in the Apache Junction area near the Goldfield and Superstition mountains. A 40 percent reduction in minerals activity on federal land is expected here. However, the development of any existing, but undelineated, porphyry copper bodies in this area is not expected. To the east, in the Mineral Butte area, mineral activity on disposal land would cease altogether.

Within the boundaries of the proposed White Canyon RCA, mineral activity would continue or even increase somewhat because the proposed acquisitions should open new land to mineral activity.

In the southern portion of the RMP area, a decline in mineral activity on all public land outside the proposed Baboquivari and Silverbell RCAs is expected. However, this would be offset somewhat by an increased interest in acquired land within the RCAs. Of greatest significance would be a 85 to 95 percent decline in prospecting and exploration activity on federal land identified for disposal south of Tucson. It is here that the greatest potential exists for future development of yet unknown porphyry copper bodies. Overall this could be the most significant impact of all under *Alternative B*.

Conclusion (Locatable Mineral Development). Expect a 50 percent reduction in mining notices and a 75 percent reduction of MPOs filed in the RMP area, caused primarily by land disposals south of Tucson.

Effects on Watershed Condition

Under *Alternative B*, management changes would be adopted which would affect watershed condition. Those allotments within RCA boundaries which have the greatest number of important resource values (Tables 2-4 and 2-10) would receive priority for project work, subject to available funding. Where those allotments are identified as Category IV watersheds, an activity plan would be prepared to identify and implement, among other things, watershed improvement projects. Subsequent improvement of the watershed would increase soil cover and infiltration, reduce erosion, sediment yield, peak flows and dust emissions, maintain soil productivity and, in some areas, enhance stream flow. Air and water quality would be enhanced.

Such change in watershed conditions and function would be a significant positive impact. Watershed improvement work is proposed on six allotments (204,000 acres). This figure includes 111,000 of the RMP area's 246,000 acres in Category IV watersheds and includes 93,000 acres of acquired land.

The other major action under *Alternative B* to benefit watershed conditions and related values would be the imposition of off-road vehicle restrictions. Although the trends in watershed conditions are assumed to be static, population trends indicate that recreation demands, including that of ORV use, will increase. Soils in some watersheds are particularly prone to accelerated erosion after ORV disturbance. ORV restrictions would prevent the further decline of these watersheds. Under *Alternative B*, ORV restrictions or transfer of ownership would prevent further degradation to 182,000 acres of land currently held in public ownership, 85,000 of which have slightly to strongly saline soils.

Conclusion (Watershed Condition). Significant improvements would occur to 204,000 acres on six Category IV allotments. ORV designations would allow existing acceptable conditions on Category II allotments to be maintained.



Effects on Rangeland Management

Under *Alternative B*, ranch operations within the seven RCAs would benefit from the BLM's consolidation program. Ranch operators would only have to deal with the grazing regulations of one agency and the BLM would be able to develop rangeland improvements on these allotments as a cohesive unit, thereby increasing the effectiveness of such improvements.

Ranch values of those ranches within the RCAs would not be affected by the acquisition of state land by the BLM as lease values on BLM and Arizona State Land Department land are comparable.

Alternative B would result in the disruption of some ranch operations which lie outside the identified RCAs. If public land within a ranch is disposed to private interests in areas of growth and development, livestock would likely be fenced out. Where such fencing renders improvements ineffective, development of improvements such as wells and pipelines would require large investments of time and money.

In areas identified for disposal where development does not occur, grazing is expected to continue because blocks of public land acquired by private owners would in most cases be available for lease to the rancher. However, grazing fees on such land may be substantially more than those charged by the federal government.

Under *Alternative B*, ranches grazing public land identified for disposal may undergo a reduction in ranch values if federal grazing leases are cancelled. This would only occur on land transferred from federal to private ownership. On land transferred from federal to state ownership, the Arizona State Land Department generally has chosen to maintain grazing privileges.

The value of ranches lying outside the RCA boundaries would be reduced if federal grazing leases were cancelled and not replaced by state leases.

Without federal leases, the average values of small, medium and large ranches would be lowered, respectively, from \$57,000 to \$41,610, from \$208,000 to \$189,280 and from \$780,000 to \$756,600. Values of ranches within the RCAs would not change.

Conclusion (Rangeland Management). The value of ranches lying outside RCA boundaries would be reduced if federal grazing leases were cancelled and not replaced by state leases. Value reductions would average 27 percent for small ranches, nine percent for medium-sized ranches and three percent for large ranches. Consolidating public land on ranches in the RCAs would eliminate management complications caused by checkerboard ownership.

Effects on Areas of Cultural Significance

Under *Alternative B*, land acquisitions within five significant cultural areas would have a positive effect on at least 285 sites. These five areas include: Avra Valley, Santa Ana del Chiquiburitac, Reymert Townsite, Middle Gila and Perry Mesa. The BLM would be able to focus management efforts on the protection and enhancement of the information, public and conservation values provided by the sites.

Disposal of public land under *Alternative B* would impact cultural values in five of the ten identified

areas of cultural significance. These areas are Zuni-Hardscrabble, Snowflake-Mesa Redonda, Upper Little Colorado, Lower Texas Gulch and Lower Agua Fria. Existing laws, regulations and memoranda protect, through mitigation, the information values that would be derived from cultural sites. However, public and conservation values of properties in the five disposal areas would be lost under this alternative.

ACEC and SMA designations would benefit high value cultural resources in Santa Ana del Chiquibritac, Avra Valley, Middle Gila, Reymert and Perry Mesa. Long-term protection and enhancement of at least 285 sites in the above five areas would result.

Cultural resources within recommended utility corridors in Middle Gila and Avra Valley could be dealt with on a one-time basis. Avoidance and mitigation of properties would be performed before utility system development could take place. Therefore, the information value of all cultural sites within the path of utility system development would be derived.

Limiting ORV use to existing roads and trails would benefit archaeological sites only slightly. However, direct and indirect impacts to at least 388 properties would probably continue and road closures at Reymert and Santa Ana would benefit these sites.

Table 4-2 shows how cultural properties in each of the 10 significant cultural areas would fare under *Alternative B*.

Conclusion (Areas of Cultural Significance). Land acquisitions and ACEC and SMA designations which specify management for Santa Ana del Chiquibritac, Avra Valley, Reymert Townsite, Middle Gila and Perry Mesa would result in long-term positive effects on at least 285 sites. On land identified for disposal, 105 sites would suffer a 10 to 25 percent loss of cultural value.

Effects on Vegetation

Under this alternative, coordinated resource management plans would be developed for nine grazing allotments to benefit many important resources. These plans would incorporate grazing management, watershed management, habitat management and riparian management into one activity plan. Implementation would result in improving the ecological condition on nine grazing allotments. Some sites would improve faster than others, however. The average condition of each area would improve approximately 25 percent during the planning period.

Conclusion (Vegetation). Implementation would result in a 25 percent improvement of ecological site

condition on nine allotments encompassing 256,444 acres of public land.

Effects on Riparian Habitat

Under *Alternative B*, 74 of the RMP area's 94 miles of public riparian habitat would be retained in federal ownership and the BLM would pursue the acquisition of 54 miles of state-owned riparian habitat within the RCAs (Table 4-3, Figure 4-1 and Appendix 7). Overall, the amount of riparian habitat on public land in the RMP area would increase 36 percent. Riparian management would be emphasized on 50 miles within eight special management areas (Table 4-7) to improve habitat condition (Table 4-3 and Figure 4-2).

TABLE 4-7
Riparian Habitat in Areas Proposed for Special Management — Alternatives B and C
Bureau of Land Management,
Phoenix District, Arizona

Habitat Name	Special Management Area	Miles
Agua Fria	Williams Mesa	1.7
Arrastre Creek	Bumble Bee	2.7
Bumble Bee Creek	Cordes Junction and Bumble Bee	7.7
Hassayampa River	Hassayampa River Riparian	10.7
Larry Creek	Larry Canyon ACEC*	0.4
Castle Creek	Bumble Bee	0.9
Sycamore Creek	Sycamore Creek	0.8
Cottonwood Gulch	Williams Mesa	0.2
Antelope Creek	Bumble Bee	2.7
Gila River	Gila River Riparian	15.0
White Canyon	White Canyon ACEC	3.1
Walnut Creek	White Canyon ACEC	1.2
Tule Creek	Williams Mesa	1.0
Boulder Creek	Williams Mesa	4.2

*Under *Alternative C*, Larry Creek would be within the Perry Mesa ACEC.

Source: Phoenix District files.

Larry Canyon would be managed as an ACEC to maintain the pristine riparian deciduous forest community. Restrictions accompanying the designation would benefit the canyon by ensuring the canyon's pristine riparian community would be maintained.

A total of 630 acres of riparian habitat, including portions of Zion and Picacho reservoirs, would be transferred to the AG&FD under the R&PPA to be managed for aquatic and wildlife communities.

Under *Alternative B*, 20 miles of riparian habitat area would be disposed of through exchanges (see Appendix 7). The land probably would not be managed with the overall objective of maintaining and improving riparian habitat but would be subject to impacts from unregulated activities such as ORVs, mining, grazing, rights-of-way construction, land treatments and water removal.

Conclusion (Riparian Habitat). Acquiring 53 miles of habitat would increase public riparian habitat in the RMP area by 36 percent. Fifty-four percent of (43 miles) of all habitat would be managed to improve current condition.

Effects on Special Status Plants

Peebles Navajo Cactus — *Pediocactus peeblesianus* var. *peeblesianus* — Federally listed — Endangered. Under *Alternative B*, the BLM would retain about 640 acres of known habitat for the Peebles Navajo cactus. In addition, the BLM would acquire 1,280 acres of state land and up to 1,820 acres of private land which either have known populations of the species or would be needed for the management and protection of existing populations (Table 4-4 and Figure 4-3). Overall land tenure adjustment under *Alternative B* would result in 3,740 acres of habitat coming into public ownership, a 480 percent increase over the existing situation.

Acquisition of the identified state and private land would place all known populations of the plant under the protection of the *Endangered Species Act* (ESA). The federal and acquired land would be designated as the 3,740-acre Tanner Wash ACEC and managed to protect and promote recovery of the species. In combination, these actions are expected to prevent the extinction of this species.

Conclusion (Peebles Navajo Cactus). Land acquisition would result in a 480 percent increase in occupied habitat on public land. Extending federal protection to all known populations is expected to prevent extinction.

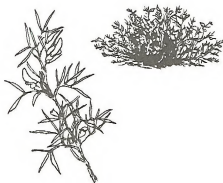
Tumamoc Globeberry — *Tumamoca macdougalii* — Federally listed — Endangered. Under *Alternative B*, the BLM would retain about 5,740 acres of occupied habitat with 40 plants while disposing of 1,060 acres with eight plants. Considering potential habitat, the BLM would dispose of approximately 33,900 acres of habitat with a high to moderate potential for occurrence of *Tumamoca* in scattered tracts while retaining 85,300 acres and acquiring up to 31,360 acres of similar habitat within the Silver Bell RCA. Overall, this would result in 116,600 acres of potential habitat being in public ownership, a two percent reduction of such habitat on public land in the RMP area (Table 4-4).

The retention and acquisition of land into RCAs would consolidate Tumamoc globeberry habitat on federal land and present better opportunities than currently exist for managing the species. The BLM would work with the USFWS to implement the Tumamoc Globeberry Recovery Plan.

The eight *T. macdougalii* plants on 1,060 acres of occupied habitat slated for disposal probably would be destroyed by future development. However, these plants represent less than one percent of the protected population.

Even though the land tenure adjustment proposed under *Alternative B* would decrease by two percent the total amount of federally controlled suitable habitat for the Tumamoc globeberry, management of the species would improve under the alternative because the BLM would manage consolidated blocks of habitat. It is likely that intensive management for the species on retained and acquired land would more than offset losses to populations on disposed land.

Conclusion (Tumamoc Globeberry). Land tenure adjustments would result in a two percent reduction in federally protected habitat but would consolidate public ownership of habitat with 40 of the 48 plants known on public land. Long-term protection within consolidated public land blocks is expected to outweigh short-term effects of disposing of land with eight plants and be beneficial to federal efforts to protect the species.



Nichol Turk's Head Cactus — *Echinocactus horizonthalonius* var. *nicholii* — Federally listed — Endangered. Under *Alternative B*, the BLM would retain in federal ownership all 1,960 acres of the Turk's head cactus habitat which it currently administers in the RMP area. These acres plus 600 acres of state and 540 acres of private land identified for acquisition would be included in the 3,100-acre Waterman Mountain ACEC with specific management goals identified. Overall, *Alternative B* would result in a 58 percent increase in the amount of Nichol Turk's head cactus habitat on public land (Table 4-4).

Acquisitions under *Alternative B* would bring all known populations outside the Tohono O'Odham Reservation under federal protection. Some mineral development on existing claims would result in the loss of additional plants and habitat, but under *Alternative B*, the long-term impacts of mining would be significantly reduced. Losses due to ORV activity would also be reduced.

Conclusion (Nichol Turk's Head Cactus). Land acquisitions would increase federally protected habitat by 58 percent. Protection measures under ACEC designation are expected to provide for recovery of the species.

Thornber Fishhook Cactus — *Mammillaria thornberi* — Federal Category 2 — Candidate. Under *Alternative B*, the BLM would retain about 22,000 acres of suitable habitat on the west side of the Avra Valley, including known habitat for 50 plants, and acquire 12,000 acres of state land in suitable habitat. Overall, *Alternative B* would result in a 13 percent increase in the amount of Thornber fishhook cactus habitat on public land.

The BLM would dispose of 470 acres of known habitat on the east side of the Avra Valley west of Tucson with 145 known plants of Thornber fishhook cactus. The populations of Thornber fishhook cactus on the BLM disposal tracts are likely to be destroyed by secondary impacts from development on adjacent private land. These plant losses would be balanced by the acquisition of other suitable habitat where opportunities for management of the species would be enhanced by blocking federal ownership, e.g., the Silver Bell Resource Conservation Area.

Conclusion (Thornber Fishhook Cactus). Consolidating federal ownership through land acquisitions would increase protected habitat by 13 percent under *Alternative B*. Even with the loss of some known habitat through disposal, long-term benefits would be positive.

Sword Milkvetch — *Astragalus xiphoides* — Federal Category 1 — Candidate. Under *Alternative B*, the BLM would retain 640 acres of habitat in federal ownership and would cooperatively manage the parcel with the U.S. Park Service. This site is one of five localities known for the species; two are under federal control and three are on private land that is expected to be developed.

The only difference between *Alternative A* and *Alternative B* with regard to this species would be that the U.S. Park Service would assist in the management of the species and its habitat on the BLM's 640-acre tract. It is assumed that the species would be managed and protected under the ESA by 1989 because populations on private land are expected to be destroyed over the long term by anticipated commercial or residential development. Under *Alternative B*, sword milkvetch would be restricted to two localities, greatly increasing the threat of species extinction from localized environmental factors over the next 50 to 100 years.

Conclusion (Sword Milkvetch). Federal protection of occupied habitat would be enhanced but not to the point where federal listing would be prevented.

Paperspined Cactus — *Pediocactus papyracanthus* — Federal Category 2 — Candidate. Under *Alternative B*, the BLM would dispose of all public land in Arizona with known or suitable habitat for the paperspined cactus.

Although it is likely that some of the habitat on disposal land would be developed for residential or commercial purposes, most of the habitat would continue to be utilized for livestock grazing. Intensive livestock grazing systems are gaining popularity in the area and would contribute to a downward trend currently seen in the populations.

Conclusion (Paperspined Cactus). Disposal of public land habitat would contribute to a decline of populations. Although the decline of a species over part of its range may contribute to federal listing, most of the populations occur in New Mexico and habitat loss in Arizona is not expected to affect its status.

Effects on Wildlife

Gila Topminnow — *Poeciliopsis occidentalis occidentalis* — Federally Endangered. Under *Alternative B*, the Gila topminnow population in Tule Creek would be managed and monitored. It is assumed that the existing population would eventually be lost due to natural flooding within the Tule Creek drainage. Under *Alternative B*, the fish would

be restocked, however, thereby maintaining a successfully reproducing Gila topminnow population in the RMP area.

Gila topminnows would be introduced into five of six suitable sites (See Table 3-15) to mitigate the 1981 loss of the natural population on public land in Cocio Wash. Eight of the recommended total of 20 introduction sites in Arizona are in the RMP area, but two are in disposal areas and one is in the Larry Canyon ACEC. The AG&FD and USFWS would not introduce fish onto public land that is expected to leave federal ownership and management goals for Larry Canyon did not identify fish introductions. The acquisition of land would benefit recovery efforts as land slated for acquisition are likely to contain additional sites suitable for reintroduction. However, the extent of this impact is unknown since the land has not yet been inventoried for reintroduction sites.

Conclusion (Gila Topminnow). Maintaining an existing population and reestablishing fish into five sites within their historic range would assist in the eventual recovery of the species.

Desert Pupfish — *Cyprinodon maculorius* — Federally Endangered (also State-listed). Under *Alternative B*, the Mesquite Spring population of pupfish would be managed and monitored. Pupfish would be introduced into three suitable sites in the RMP area, thereby increasing the total number of occupied sites in Arizona by 57 percent. The AG&FD and USFWS would not put fish into two sites on land proposed for disposal, preventing an additional 28 percent increase. However, acquisitions under *Alternative B* are expected to offset this impact as it is likely that the acquired land will contain suitable reintroduction sites.

Conclusion (Desert Pupfish). The Mesquite Spring population would be managed and monitored and fish introduced into three suitable sites, thus increasing the occupied sites in Arizona by 57 percent. This, along with the acquisition of other suitable sites, will assist in delisting the species.

Little Colorado River Spinedace — *Lepidomeda vittata* — Federally Proposed — Threatened. Under *Alternative B*, 1.7 miles or 1.5 percent of the total Little Colorado River spinedace habitat would be removed from federal protection under the *Endangered Species Act*. Disposal of land would not affect the survival of populations in the remaining four major drainages inhabited by spinedace. However, since all federal management would be eliminated from the Silver Creek drainage, the habitat would be

negatively impacted by upstream water removal and control. Dewatering of the Silver Creek drainage is expected to eventually cause the loss of suitable spinedace habitat on the disposal land. The lack of management of spinedace habitat could contribute to the disappearance of the species from Silver Creek, one of the five major drainages inhabited by spinedace.

Conclusion (Little Colorado River Spinedace). About 1.5 percent of the total habitat (eight percent of the Silver Creek habitat) would be removed from federal protection under the *Endangered Species Act*.

Desert Bighorn Sheep — *Ovis canadensis mexicana* — State-listed. Under *Alternative B*, 39,200 acres of public land in crucial desert bighorn sheep habitat would be retained and designated as a special management area to maintain the existing population of 50 to 60 desert bighorn. In addition, the BLM would pursue the acquisition of 11,400 acres of state land within the management area and manage them as crucial habitat. Overall, the land tenure adjustment would result in a 29 percent increase in the amount of public land habitat for bighorn sheep in the RMP area (See Table 4-5 and Figure 4-4). Also, 90 percent of the total crucial habitat in the RMP area would come under federal ownership and be actively managed for desert bighorn sheep.

Vehicular use is expected to increase throughout the Silver Bell and West Silver Bell Mountains. ORV designations recommended under *Alternative B* would prevent habitat damage to bighorn sheep areas and would prevent the animals from abandoning significant portions of the habitat. Closing 800 acres in the lambing area on Ragged Top to vehicular use would prevent impacts by ORVs and would reduce impacts from mining activities. Therefore, closure would greatly benefit bighorn populations by improving bighorn lambing conditions.

Under *Alternative B*, there would be no new surface disturbance from major right-of-way development in crucial desert bighorn habitat because such development would be limited to existing corridors. Construction of such rights-of-way in the designated utility corridor along the western edge of crucial habitat would conflict with bighorn travel between crucial habitat and the Tohono O'odham Reservation, but mitigating measures would keep conflicts to a minimum and maintain the travel corridor.

Designating Confidence Peak as a communication site would negatively impact bighorn use of 400 acres of habitat in the vicinity of the peak. One existing facility is accessed by a jeep trail. Construction, maintenance and use of communication facilities

would create additional intrusions into bighorn habitat.

Prohibiting surface occupancy on oil and gas leases within 30,200 acres of crucial desert bighorn habitat would benefit bighorn by preventing habitat destruction and disruption of habitat use patterns.

Conclusion (Desert Bighorn Sheep). The existing population of 50 to 60 is expected to remain stable. The BLM's objective to maintain a viable population in the Silver Bell-West Silver Bell Mountains and to increase habitat capability would be met.

Desert Tortoise — *Gopherus agassizi*. Under *Alternative B*, 399,800 acres of public land within the range of desert tortoise would be retained. In addition, the BLM would pursue the acquisition of 209,000 acres but would dispose of 158,000 acres. Overall land tenure adjustments would result in the BLM retaining and acquiring 608,800 acres of desert tortoise range, a nine percent increase over the existing situation (See Table 4-5).

The BLM would retain all 61,300 acres of tortoise habitat identified as important and acquire 17,900 acres (See Chapter 3). Overall, *Alternative B* would result in a 30 percent increase in the amount of important tortoise habitat on public land in the RMP area. This important habitat in the Picacho Mountains, Silver Bell Mountains and the Donnelly Wash-Grayback area would be managed to maintain habitat capability. Such management would ensure the viability of existing populations.

Designation of a special management area in the Picacho Mountains and implementation of an activity plan would result in the maintenance of existing populations on this important habitat. However, management of only the 6,400 acres of public land would not significantly benefit the Picacho Mountains population as a whole since important habitat on the lower rock slopes is on adjacent state land.

The designation of two communication sites on two of the highest peaks in the Picacho Mountains is not expected to impact desert tortoise populations because tortoise generally inhabit the lower elevations and no roads would be constructed to access the sites in the lower elevations.

Vehicular use is expected to increase throughout the range of the desert tortoise. Limiting vehicles to existing roads and trails would prevent habitat damage and tortoise injuries. However, impacts associated with existing roads would continue.

Approximately 32,200 acres (six percent) of desert tortoise range on public land is included in four CRMAs. Management plans for these areas would

include actions to prevent and mitigate tortoise habitat disturbances. However, in these CRMAs, tortoise populations would be expected to exhibit a downward trend in localized developed areas or areas of high visitor use because of surface disturbances, disruption of home ranges, collection and vandalism.

Conclusion (Desert Tortoise). Public land habitat would increase by nine percent and 100 percent of the known important public land habitat would be retained. The BLM's objective to maintain the capability of important habitat would be met.



Pronghorn — *Antilocapra americana*. The RMP area has two areas that support populations of pronghorn antelope, one on Sycamore Mesa east of Cordes Junction and the other in Apache and Navajo counties. On Sycamore Mesa, antelope inhabit about 78,000 acres of which 12 percent (9,200 acres) is currently public land.

Under *Alternative B*, all 9,200 acres of Sycamore Mesa and Perry Mesa habitat would be retained. In addition, the BLM would pursue the acquisition of 54,000 acres of habitat on state land. Overall land tenure adjustments would result in the BLM retaining and acquiring 62,800 acres of pronghorn habitat, a 590 percent increase over the existing situation (See Table 4-5). Public and acquired pronghorn habitat would be managed to protect and improve habitat conditions and to facilitate pronghorn movement throughout their habitat. Active management of pronghorn habitat would result in a slight increase in pronghorn numbers.

Under *Alternative B*, public land comprising 24 percent of a pronghorn travel corridor between Sycamore Mesa and Chino Valley would be disposed of through exchanges. The majority of this land would be developed under private ownership, which would greatly restrict pronghorn movement through the corridor. The loss of the travel corridor would contribute to the geographic isolation of the mesa and valley populations and subsequent loss of genetic diversity.

In Apache and Navajo counties, public land amounts to about seven percent of the two counties' total pronghorn habitat. Under *Alternative B*, all public land pronghorn habitat would be disposed of. Two percent of this disposal land is near land which is currently being subdivided and is likely to be developed in the near future. As subdivisions become numerous and human occupants settle in, the land would lose its value as pronghorn habitat.

Conclusion (Pronghorn). Through land acquisitions, public land habitat on Sycamore Mesa would increase by 590 percent and be actively managed. Numbers would increase slightly even though restricted movement through the travel corridor would lead to geographical isolation. Two percent of the total habitat in Apache and Navajo counties would eventually be abandoned as a result of subdivision development, but the remaining land (five percent of the total) would continue to provide habitat.

Mule Deer — *Odocoileus hemionus*. Under *Alternative B*, 182,000 acres of public land which supports medium to high density mule deer populations would be retained. In addition, the BLM would pursue the acquisition of 180,000 acres of such habitat. Overall land tenure adjustments under *Alternative B* would result in the BLM retaining and acquiring 387,600 acres of mule deer habitat, a 42 percent increase (See Table 4-5).

The majority of this public land is in the White Canyon RCA with the remainder in the Picacho Mountain and Black Canyon RCAs. The land is currently providing high value deer habitat and would be managed to ensure that it continues to provide important mule deer habitat.

Under *Alternative B*, 93,000 acres of the public land in the RMP area that provides mule deer habitat would be disposed of through exchanges. More than half is in areas that are likely to be developed in the near future. The land would eventually support zero or very sparse deer densities.

Mule deer habitat would be managed under two updated HMPs (Black Canyon and Middle Gila) and one new HMP (Picacho Mountains). Management actions directed toward maintaining and improving mule deer habitat would be undertaken and mule deer numbers should increase in these areas.

ORV designations limiting vehicles to existing roads and trails in the majority of the RMP area and closing specific areas would prevent the loss of deer habitat and harassment of mule deer. ORV designation would prevent localized decreases in mule deer numbers caused by heavy off-road vehicular use.

Conclusion (Mule Deer). Land acquisitions would increase public land habitat supporting medium to high density populations by 42 percent and total habitat capability would increase by three percent because of ORV designations and improvements planned under updated HMPs.

Javelina — *Dicotyles tajacu*. Under *Alternative B*, 420,000 acres of public land supporting medium to high density javelina populations would be retained. In addition, the BLM would acquire 90,000 acres of such habitat but would dispose of 74,000 acres. Overall land tenure adjustments under *Alternative B* would result in a 17 percent increase in public land javelina habitat in the RMP area.

Black Canyon, Lake Pleasant, White Canyon, Silver Bell and Picacho Mountains RCAs would be managed to ensure good condition javelina habitat. Acquired land would block up extensive areas in the four RCAs which would be managed to benefit javelina.

About one-third of the javelina habitat identified for disposal is in areas likely to be developed soon. Once the land begins to be developed, it would lose value as javelina habitat and would support lower densities. The javelina that do remain would eventually become nuisance animals on private land.

Javelina habitat would be managed under three updated HMPs (Black Canyon, Middle Gila and Silver Bell-Baboquivari) and one new HMP (Picacho Mountains). Public land would continue to support existing populations and javelina numbers would increase in areas where habitat improvements are instituted.

ORV designations limiting vehicles to existing roads and trails in the majority of the RMP area and closure of specific areas would prevent the loss of habitat and the harassment of javelina. ORV restrictions would contribute to the maintenance of important habitat.

Conclusion (Javelina). Public land supporting medium to high density populations would increase by 17 percent. Acquisition of state land in five RCAs would benefit by blocking up areas of important habitat and maintaining or improving habitat quality. The BLM's objective to increase habitat capability by four percent would be realized. ORV designations would prevent localized losses caused by heavy off-road vehicular use.

Effects on Wild, Free-Roaming Burros

Under *Alternative B*, 80,800 acres of historic burro habitat in the proposed Lake Pleasant Resource Con-

servation Area would be designated a special management area (SMA) for burros. The SMA would include current public land and land identified for acquisition. Including acquired land, the public land used by burros would increase by three percent. The designation of the burro herd SMA and subsequent implementation of a Herd Management Area Plan would provide for a base herd of 80 burros.

The proposed increase in burro densities to about one animal per 1,000 acres would increase breeding interaction and would halt the current population decline. ORV restrictions proposed under this alternative would benefit burros by reducing the opportunities for harassment of burros in remote, roadless areas.

Conclusion (Wild, Free-Roaming Burros). A three percent increase in public land for use by burros, the reduction in harassment incidents through ORV restrictions and an activity plan detailing other protection measures would allow for the maintenance of an 80-animal herd without negatively impacting vegetation.

Effects on Recreation Use

Under *Alternative B*, existing opportunities for unstructured and dispersed recreation activities would be maintained (Table 4-8 and Figure 4-5). Additional efforts would be made to enhance these opportunities or contribute to the development of new activities or recreation facilities through R&PPs, CRMAs and BLM-managed recreation areas.

Five R&PP leases totaling 3,781 acres would be issued. Urban and facility-base recreation opportunities would benefit from this action because the availability of low cost federal land would enable state and local governments to build and expand parks, recreation sites and wildlife protection areas. The areas would satisfy the needs of local governments to provide developed and intensively managed visitor facilities accessible to expanding metropolitan areas.

Five cooperative recreation management areas (CRMAs) would be managed cooperatively with local governments for intensive recreation purposes. These CRMAs would greatly enhance recreation opportunities in the RMP area by making large blocks of land near major metropolitan areas available for various open space recreation pursuits. Through a series of land exchanges, the BLM would work to consolidate public ownership within and cooperatively manage with local governments the Lake Pleasant, Black Canyon Trail, San Tan Mountains, Tortolita Mountains and Sawtooth Mountains CRMAs (33,963 acres).

The establishment of seven resource conservation areas (RCAs) would provide extensive areas of public land for dispersed, unstructured recreation activities. Limiting ORVs to existing roads and trails would prevent surface disturbance in these RCAs and protect the visual and scenic qualities of each area.

Legal access routes would be acquired into the Sawtooth, Picacho, Coyote and Baboquivari mountains. Recreationists would no longer experience difficulties reaching these areas because of locked gates on private land.

TABLE 4-8
Projected Long-Term Recreation Visits Per Year — Alternative B
Bureau of Land Management, Phoenix District, Arizona

Use Areas	Motorized Travel	Camping	Fishing	Hunting	Other	Totals
Baboquivari/Coyote Mtns.	100	800	0	200	1,300	2,400
Silver Bell/Sawtooth Mtns.	17,100	6,000	0	14,000	28,000	65,100
Picacho Mtns./Reservoir	200	250	0	300	500	1,250
Gila River Canyons Area	13,660	3,000	400	17,400	23,000	57,460
Black Canyon Area	9,275	3,000	0	1,000	11,800	25,075
Lake Pleasant Region	402,400	300,000	400,000	35,300	62,000	1,200,000
Scattered tracts	450	50	0	175	420	1,095
TOTALS	443,485	313,100	400,400	68,375	127,020	1,352,380

Source: Phoenix District files.
Recreation Management Information System data.

The BLM would play a major role in the development of Maricopa County's Lake Pleasant Regional Park by entering into a management agreement with Maricopa County for managing the park, with development centered on public land. Through this agreement, the BLM can offer a wide variety of water-based recreation opportunities not presently available on Phoenix District public land. The BLM and Maricopa County will manage 16,000 acres of public land within the expanded park boundaries. These additional acres will greatly enhance and improve park facilities. The Lake Pleasant master plan calls for a new lodge, two marinas, restaurants, campgrounds, roads, trails and a primitive area. A new paved highway across public land into the park from State Highway 74 was dedicated on August 26, 1987.

Visitor use of the park and surrounding BLM-managed public land will rise to more than a million visits as the lake fills and new facilities are developed.

Existing dispersed recreation opportunities on public land outside the regional park would be maintained or enhanced by establishment of the Lake Pleasant RCA.

Open space recreation opportunities would be greatly expanded by the establishment of the Hells Canyon Recreation Management Area and by blocking up public land in the RCA. Hiking, backpacking, plant and wildlife sightseeing and camping would increase. ORV use and all-terrain vehicle use would also increase, with use confined to existing roads and trails.

Under this alternative, the Black Canyon RCA would provide improved unstructured and diverse recreation opportunities. Visitor use levels would increase in all recreation types because of population growth and the increased availability of public land, but the greatest increase (about 100 percent) is anticipated in hiking, backpacking, backcountry camping and equestrian use. The establishment, marking and signing of the 60-mile Black Canyon Hiking and Equestrian Trail (CRMA-BLM and Maricopa/Yavapai counties) would be the major contributor in the growth in nonmotorized activities.

The Gila Canyons area would continue to provide unstructured and undeveloped dispersed recreation opportunities. The types and patterns of most recreation use, except nonmotorized, would remain similar to that of the present, with visitor use gains averaging 28 percent. Nonmotorized travel would experience the greatest visitor use gains (70 percent) because the Trans-Arizona Trail crosses the area and because of the popularity of White and Walnut

canyons to hikers. Outstanding scenic, wildlife, riparian and cultural values would attract hikers and permit nature study and observation.

Cross-country ORV use would be limited to existing roads and trails in the area, but ORV use levels would still increase as there are numerous trails and roads available to pursue those activities.

The 6,400-acre area Picacho Mountains retention area would continue to provide unstructured and dispersed recreation opportunities under this alternative. About 75 percent of existing ORV opportunities would be lost, however, with the disposal of the northern portion of the Picacho Range. The quality of backcountry or primitive recreation experiences would decline somewhat because of additional microwave communication site development on Newman Peak. Hunting and sightseeing would increase from improved legal access, along with camping, hiking and wildlife observation opportunities. The area would remain an excellent setting to observe desert tortoise and deer populations.

The 102,000-acre area comprising the Sawtooth Mountains and Silver Bell Mountain complex would provide both developed and undeveloped dispersed types of recreation opportunities. The quality of those opportunities would increase because of managed visitor use, including ORV designations and establishment of several special management areas. The Sawtooth Mountains would be developed as a CRMA, enhancing recreation opportunities in the area.

The types and patterns of recreation use would remain similar to present ones except in the Sawtooth Mountains. Additional residential development in the Altar Valley and nearby retirement communities will increase visitor use levels by an average of 37 percent, with the greatest gains in ORV and other motorized use. Hunting levels would remain static due to unchanged small game and deer populations.

In the Coyote and Baboquivari mountains, the types, patterns and level of visitor use, except motorized, would triple over the long term as legal access is provided to these public land areas. Outstanding rockclimbing, hiking, primitive camping, wildlife observation, sightseeing and backcountry experiences would be maintained. Reliable access would increase hunting in the eastern canyons of the Coyote Mountains.

Scattered Tracts. The sale, exchange and disposal of many scattered tracts of BLM land under this alternative would cause a loss of 88 percent of existing recreation opportunities associated with this land.

Conclusion (Recreation). Consolidated public ownership of land in seven RCAs would provide

expanded open space recreation opportunities near major metropolitan centers. Five CRMAs would allow development of intensively managed recreation areas and five R&PP leases would significantly improve local governments' ability to provide urban-oriented recreation facilities.

IMPACTS OF ALTERNATIVE C

Effects on Land Uses

Land Ownership. Under *Alternative C*, total public land ownership in the RMP area would be reduced two percent from 911,340 acres of federal surface estate to 889,364 acres of federal surface estate, assuming that all state land recommended for acquisition within the RCAs and CRMAs is acquired. The public land that is retained and acquired would form a much more manageable land pattern. Consolidation of land in the six RCAs would greatly improve management efficiency and thus reduce management costs.

Disposal of 372,837 acres by exchange and 42,538 acres by exchange or sale would eliminate the RMP area's highly fragmented public land pattern that is difficult and inefficient to manage. The largest decreases in public land acreage would be in Apache and Navajo counties where 100 and 95 percent, respectively, of the counties' public land would be scheduled for disposal.

Consolidation of federal surface and subsurface estate under *Alternative C* would eliminate problems associated with managing split estate land.

Land Available for Recreation and Other Public Purposes. *Alternative C* identifies 2,552 acres as suitable for transfer under the R&PP Act to state or local government entities. Transferring public land within the Tortolita Mountains and the Goldfield Mountains under the R&PP Act (Table 2-5) would benefit Pinal and Pima counties in the short term by adding this land to their parks systems. However, the BLM would only make that land now in public ownership within the Tortolita County Park available for park development. The BLM would not acquire state or private inholdings for park use. Thus, under *Alternative C*, county park acquisition costs would increase by several million dollars and it is unlikely that Pima County would be able to acquire all state and private land identified for acquisition in the county's Tortolita Park plan.

Under *Alternative C*, the BLM would dispose of public land on Saginaw Hill (southeast Tucson), Tucson Mountain Park extension and Picacho and Zion reservoirs. These parcels have been identified as important public recreation land by local governments who would have to buy these parcels at the appraisal value rather than through the Recreation and Public Purpose Act. This alternative would benefit the federal government as fair market values would be received for the identified land. However, *Alternative C* would increase costs to local governments if they chose to buy the needed parcels.

Right-of-Way Development. *Alternative C* identifies seven utility corridors for designation. Six of these corridors follow the same routes as those identified in *Alternative B* except the corridors may be shorter or longer so that they conform to the *Alternative C* RCA boundaries. The impacts of designating these six corridors are the same as those identified under *Alternative B*.

One corridor identified in *Alternative B*, the Black Canyon, is rerouted across Perry Mesa under *Alternative C*. Rerouting this corridor is expected to reduce construction costs as the topography of Perry Mesa is much less rugged than that of the Black Canyon routing. In addition, problems associated with utility system overcrowding and interference along the Black Canyon corridor would be eliminated in the Perry Mesa corridor.

Alternative C proposes the designation of four communications sites on 92 acres in the RMP area (Table 2-8). No further development would be allowed on Confidence Peak. All new communication site rights-of-way in the RCAs would be restricted to the four designated sites.

The designation of communication sites would reduce the proliferation of communication facilities within the RMP area and would allow for orderly development of communication facilities on these sites. This would eliminate user conflicts which often reduce the operating efficiency of a communication site.

Alternative C significantly limits and restricts the areas available for communication site development on public land since no new sites would be authorized in nondesignated areas. New users would be forced to seek state or private land at much higher cost and construct new sites if the designated sites area not suitable for their needs.

Existing communication site users on public land identified for disposal would be allowed to continue until this land has been specifically selected for exchange or sale, but would then need to renegotiate

new terms with the new owners or remove their facilities as terms expire. This may increase the costs of maintaining such facilities.

Under *Alternative C*, land use authorizations would be prohibited on five ACECs and nine SMAs encompassing 20,500 public land acres. Prohibiting land use authorizations in these areas would cause little impact as very little request for such authorizations is anticipated.

Under *Alternative C*, rights-of-way would be restricted to existing roads and trails in the proposed Waterman Mountains ACEC (4,860 acres). Designation of 8,960 acres as the White Canyon ACEC would not impact the construction and siting of an anticipated power distribution line (2.75 acres or 15 feet by 1.5 miles) to service the expected mining activity in the southern portions of the ACEC.

All existing land use authorizations on land identified for disposal would continue to be authorized and allowed until the land is specifically identified for transfer. Upon transfer, terms and conditions would have to be renegotiated with the new owners when the authorizations expire. This may increase the costs of holding these authorizations.

Payments In Lieu of Taxes (PILT). Under *Alternative C*, 418,000 acres of public land would be transferred out of public ownership within the eight counties affected by this RMP. Transferring this land through exchanges to the state would result in a loss of PILT made to Apache, Navajo and Pinal counties (see Table 4-1), small decreases to Gila and Santa Cruz counties, but no effect on payments to Maricopa, Pima and Yavapai counties.

Decreases in PILT to the counties may be partially offset by the 42,538 acres identified for private sale or exchange. These acres, if sold, would be added to the tax rolls of the counties where they are.

None of the counties would receive increases in PILT from the acquisition of state land within the RCAs. The PILT Act of 1976 specifically prohibits payments for tax exempt land acquired from state or local governments.

Conclusion (Land Uses). Public land would be reduced two percent, but consolidating surface/sub-surface ownership in six RCAs would form a more manageable land pattern and result in reduced costs. Transferring four parcels (2,552 acres) under the R&PPA would only partially meet local governments' needs for low cost public land. Land use authorizations would be precluded on 24,574 acres in six ACECs. Designation of seven utility corridors and four communication sites would meet utilities' needs. Identifying a utility corridor across Perry

Mesa would result in reduced construction costs. Five counties would lose \$225,285 in PILT.

Effects on Locatable Mineral Development

Impacts are the same as those described under *Alternative B*.

Effects on Watershed Condition

Impacts would be similar to those described in *Alternative B* except that due to RCA boundary differences, 1,000 fewer acres would be improved.

Effects on Rangeland Management

Impacts are the same as those described under *Alternative B*.



Blue Grama

Effects on Areas of Cultural Significance

Under *Alternative C*, land acquisitions within five significant cultural areas would have a positive effect on at least 285 sites. These five areas include Santa Ana del Chiquiburitac, Avra Valley, Reymert Townsite, Middle Gila and Perry Mesa. The BLM would be able to focus management efforts on the protection and enhancement of the information, public and conservation values provided by the sites.

Under *Alternative C*, ACEC and SMA designations would protect and enhance at least 300 high value cultural resource sites in Santa Ana del Chiquiburitac, Avra Valley, Middle Gila, Reymert and Perry Mesa. Designation of a larger ACEC for Perry Mesa would result in increased protection for at least 15 major sites.

Designation under this alternative of a utility corridor on Perry Mesa would have a negative impact on the archaeological district. Construction of additional transmission lines would visually impact the *National Register District*. Also, new construction would lead to increased accessibility to the area and more traffic (pedestrian and vehicular) damage and vandalism.

Negative impacts on cultural resources within utility corridors could be mitigated. However, mitigation would only allow for a site's information values to be realized. Public and conservation values within these corridors would be lost.

ORV restrictions within Central Avra Valley, Middle Gila and Perry Mesa significant cultural areas would benefit archaeological sites. Direct and indirect impacts caused by ORV activity would probably continue as at present in Lower Agua Fria, Lower Texas Gulch, Snowflake-Mesa Redonda, Upper Little Colorado and Zuni-Hardscrabble cultural resource areas. Closures at Reymert and Santa Ana del Chiquiburitac would eliminate ORV impacts.

Information in Table 4-2 shows how each of the 10 significant cultural areas would fare under *Alternative C*.

Conclusion (Areas of Cultural Significance). Land acquisitions and ACEC/SMA designations specifying management of high value cultural resources in the Santa Ana del Chiquiburitac, Avra Valley, Reymert Townsite, Middle Gila and Perry Mesa cultural resource areas would provide long-term positive effects on at least 300 sites. In addition, 105 sites on land identified for disposal would suffer a 10 to 25 percent loss of cultural value.

Effects on Vegetation

Impacts are the same as those described under *Alternative B*.

Effects on Riparian Habitat

Under *Alternative C*, the amount of riparian habitat retained and acquired by the BLM is the same as under *Alternative B* (Table 4-3). Management emphasis would be directed toward 50 miles of riparian habitat in eight areas of special management. The effects of *Alternative C* on riparian habitat are the same as those described under *Alternative B*. Larry Canyon would be part of the larger Perry Mesa ACEC but would be managed as under *Alternative B*.

Under *Alternative C*, public land in Zion and Picacho reservoirs would be disposed of instead of transferred under the R&PPA. Public land at Zion Reservoir would continue providing important waterfowl and wading bird habitat but the land would not necessarily be maintained as wildlife habitat or improved for this purpose. As part of the flood control basin, public land in Picacho Reservoir would hold water at least seasonally; thus, its use to waterfowl would continue.

Conclusion (Riparian Habitat). Impacts are similar to those under *Alternative B* except that public land adjacent to Zion and Picacho reservoirs would be identified for disposal, having no effect on aquatic and wildlife communities.

Effects on Special Status Plants

Peebles Navajo Cactus — *Pediocactus peeblesianus* var. *peeblesianus* — Federally listed — Endangered. Under *Alternative C*, 1,727 acres of public land, 1,280 acres of state and 2,658 acres of private land would be included in the Tanner Wash RCA to protect all known and potential habitat for the Peebles Navajo cactus (Table 4-4 and Figure 4-3). Overall, *Alternative C* would result in a 785 percent increase in Peebles Navajo cactus habitat on public land. Management goals for the habitat are the same as those identified in *Alternative B*.

Alternative C would add 1,087 acres of federal and 838 acres of private land to the Tanner Wash ACEC over that in *Alternative B*. Incorporating the additional land into the Tanner Wash ACEC would protect all suitable habitat for the Peebles Navajo cactus and would maximize the potential for expansion of the cactus population. Any plants not currently discovered would likely be within the protected area.

Conclusion (Peebles Navajo Cactus). Land acquisitions would result in a 785 percent increase in occupied and suitable habitat on public land. Extending federal protection to all known populations and potential habitat is expected to prevent extinction and provide for future recovery and delisting.

Tumamoc Globeberry — *Tumamoca macdougalii* — Federally listed — Endangered. Under *Alternative C*, the BLM would have considerable opportunity for federal management of tumamoc globeberry. Although 480 acres of land with seven plants are identified for disposal, the BLM would retain 6,380 acres of public land with 41 tumamoc globeberry plants. Also, the BLM would retain 100,640 acres and seek to acquire 53,760 acres of state land with high to moderate potential *Tumamoca* habitat and at least one *Tumamoca*. The BLM would at the same time dispose of 18,560 acres of high to moderate potential habitat. Overall potential habitat for *Tumamoca* on public land in the RMP area would increase 30 percent under *Alternative C* (See Table 4-4).

Conclusion (Tumamoc Globeberry). Public land habitat would increase 30 percent. Land acquisitions would enhance the BLM's ability to manage the species. Benefits to habitat for 41 plants and protection and management of large tracts in known and suitable habitat would benefit the species and outweigh the short-term negative impacts of disposing of land with seven plants.



Nichol Turk's Head Cactus — *Echinocactus horizontalis* var. *nicholii* — Federally listed — Endangered. Under *Alternative C*, 3,440 federal acres and 600 state and 540 private acres identified for acquisition would be designated as the Waterman Mountains ACEC to protect known and suitable habitat for the Nichol Turk's head cactus. Specific management goals and planned actions would be the same as those identified for the ACEC under *Alternative B*. Overall, this alternative would increase the RMP area's public land habitat supporting Nichol Turk's head cactus by 134 percent. This alternative is similar to *Alternative B* except for the addition of 1,480 acres of BLM-administered land to the Waterman Mountain ACEC.

Addition of 1,480 acres to the ACEC would provide protection to recently identified potential habitat which may contain Turk's head cactus and provide additional suitable habitat for expansion of the current population, creating opportunities for further implementation of the recovery plan for the species.

Conclusion (Nichol Turk's Head Cactus). Land acquisitions would increase federally protected habitat by 134 percent. By including all known habitat outside the Tohono O'odham reservation under ESA and ACEC protection, expansion of populations' eventual delisting is probable.

Thornber Fishhook Cactus — *Mammillaria thornberi* — Federally proposed — Threatened. The impacts to Thornber fishhook cactus under *Alternative C* are the same as those discussed under *Alternative B* except that a total of 75,000 acres of habitat for the plant is identified for retention and acquisition under this alternative, increasing habitat on public land in the RMP area by 150 percent over the existing situation.

Conclusion (Thornber Fishhook Cactus). Consolidating federal ownership through land acquisition would increase federally protected habitat by 150 percent, contributing to but not critical to conservation of the species.

Sword Milkvetch — *Astragalus xiphoides* — Federal Category 1 — Candidate. Impacts are the same as those under *Alternative B*.

Paperspined Cactus — *Pediocactus papyracanthus* — Federal Category 2 — Candidate. Impacts are the same as those under *Alternative B*.

Effects on Wildlife

Gila Topminnow — *Poeciliopsis occidentalis occidentalis* — Federally Endangered (State-listed). Under *Alternative C* the effects on the Gila topminnow would be about the same as those described under *Alternative B* except that there would be an additional introduction site on public land. The Larry Creek site would be available for topminnow introductions under *Alternative C*. This additional site would bring the number of populations closer to the threshold level of downlisting and delisting.

Conclusion (Gila Topminnow). Impacts would be similar to those under *Alternative B* except that recovery efforts would be improved by identifying six sites for reintroduction instead of five.

Desert Pupfish — *Cyprinodon maculorius* — Federally Endangered (State-listed). Impacts would be the same as those under *Alternative B*.

Little Colorado River Spinedace — *Lepidomeda vittata* — Federally Proposed — Threatened. Impacts would be the same as those under *Alternative B*.

Desert Bighorn Sheep — *Ovis canadensis mexicana* — State-listed. *Alternative C* would have the same positive impacts as those listed under *Alternative B*. An additional benefit would be gained by not designating a communication site on Confidence Peak so there would be no new disturbance of habitat or disruption of bighorn use of habitat in the 400 acres surrounding the existing Confidence Peak communication facility.

Conclusion (Desert Bighorn Sheep). Impacts would be the same as those under *Alternative B*.

Desert Tortoise — *Gopherus agassizi*. Approximately 557,300 acres of public land in the RMP area are within the range of the desert tortoise (public land is 14 percent of the RMP area's total habitat).

Under *Alternative C*, 404,500 acres of public land within the range of desert tortoise would be retained. In addition, the BLM would pursue the acquisition of 242,700 acres but would dispose of 152,800 acres. Overall land tenure adjustments would result in the BLM retaining and acquiring 647,200 acres of desert tortoise range, a 16 percent increase over the existing situation (See Table 4-5 and Figure 4-4).

Under *Alternative C*, the BLM would retain all 60,000 acres of tortoise habitat identified as important, acquire 15,200 acres and dispose of 1,600 acres. Overall, this alternative would result in a 22 percent

increase in the amount of tortoise habitat on public land in the RMP area (See Chapter 3). This important habitat, in the Picacho Mountains, Silver Bell Mountains and the Donnelly Wash-Grayback area, would be managed to maintain habitat capability. Such management would ensure the viability of existing populations.

Impacts to the desert tortoise are essentially the same as those described under *Alternative B* except in the Picacho Mountains. Under *Alternative C*, 6,400 acres of important habitat in the Picacho Mountains would be managed as a CRMA (instead of as a special management area) for desert tortoise. About 320 acres of public land in the area are suitable for some kind of recreation development such as roads, parking areas and picnic areas. This acreage is also good tortoise habitat. Construction activities would destroy and disturb some of this habitat, interrupt tortoise home ranges and result in tortoise injuries. Park visitors would impact tortoises on public as well as state land through disruption of foraging behavior, harassment and collection. Localized declines in tortoise numbers would result on the more accessible portions of public land, but overall numbers on public land in the Picacho Mountains would remain fairly stable. However, on the adjacent state land, tortoise numbers would likely decline because of its accessibility to human visitors.

Conclusion (Desert Tortoise). Although downward population trends in the Picacho Mountains are expected, the viability of this and other important populations in the RMP area would be maintained.

Pronghorn — *Antilocapra americana*. Impacts would be the same as those under *Alternative B*.

Mule Deer — *Odocoileus hemionus*. Approximately 273,000 acres, 16 percent of the RMP area's total habitat of public land in the RMP area, is considered medium to high density mule deer habitat.

Under *Alternative C*, the BLM would retain 63 percent (172,000 acres) of the RMP area's total public land mule deer habitat. In addition, the BLM would acquire 148,000 acres of such habitat and dispose of 101,000 acres. Overall, the land tenure adjustments under *Alternative C* would increase the total habitat on public land by 17 percent, to 320,000 acres. *Alternative C* would have the same effects on medium to high density deer populations as those discussed under *Alternative B*.

Conclusion (Mule Deer). Land acquisitions would increase public land habitat supporting medium to

high density populations by 17 percent and total habitat capability by three percent because of ORV designations and improvements planned under updated habitat management plans.

Javelina — *Dicotyles tajacu*. Approximately 531,000 acres of public land in the RMP area is javelina habitat (19 percent of the RMP area's total habitat).

Under *Alternative C*, the BLM would retain 84 percent (440,700 acres) of the RMP area's total public land javelina habitat, acquire 110,000 acres and dispose of 90,270 acres. Overall, these land tenure adjustments would increase the total habitat on public land by 10 percent, to 579,000 acres. Except for the acreages involved, *Alternative C* would have the same effects on medium to high density javelina habitat as those discussed under *Alternative B*.

Conclusion (Javelina). Medium to high density public land habitat would increase by 10 percent. Acquisition of state land in five RCAs would benefit by blocking up areas of important habitat and maintaining or improving habitat quality. Habitat support capability would increase by four percent. ORV designations would prevent localized losses caused by heavy ORV use. Numbers would be expected to increase in areas where habitat improvement is significant.

Effects on Wild, Free-Roaming Burros

Under this alternative, 57,000 acres of historic burro habitat in the Lake Pleasant RCA would be designated a special management area (SMA) for burro management. The SMA would include both

current public land and land identified for acquisition and would represent a 27 percent decrease in the current authorized use area. The designation of a burro herd SMA and subsequent implementation of a Herd Management Area Plan (HMAP) would provide a basis for a proposed base herd of 60 burros. The proposal would result in densities of one burro per 950 acres.

A base herd of 60 burros does not constitute a genetically viable herd. The herd would therefore require periodic introductions of burros from outside the herd area to maintain the genetic variability necessary for herd viability.

This alternative would require development of additional permanent water sources and additional fencing to keep burros from entering the western portion of Lake Pleasant and the Tule Creek area.

Conclusion (Wild, Free-Roaming Burros). A base herd of 60 would not be a genetically viable herd. Periodic introductions of new burros from outside the herd would be required. Additional water developments and fencing would be necessary to keep burros from the western portion of Lake Pleasant and Tule Creek.

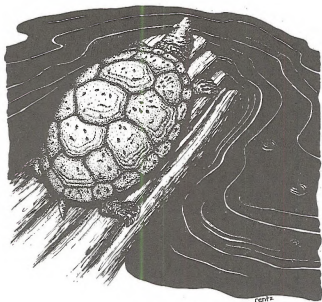
Effects on Recreation Use

Under *Alternative C*, existing opportunities for unstructured and dispersed recreation activities would be maintained (Table 4-9 and Figure 4-5). Additional efforts would be made to enhance these opportunities or contribute to the development of new activities or recreation facilities by making land available through R&PP grants, through CRMAs and BLM-managed recreation areas.

TABLE 4-9
Projected Long-Term Recreation Visits Per Year — Alternative C
Bureau of Land Management, Phoenix District, Arizona

Use Areas	Motorized Travel	Camping	Fishing	Hunting	Other	Totals
Baboquivari/Coyote Mtns.	100	800	0	200	1,300	2,400
Silver Bell/Sawtooth Mtns.	13,500	5,000	0	14,000	23,000	55,500
Picacho Mtns./Reservoir	200	750	0	0	1,500	2,450
Gila River Canyons Area	13,660	3,000	400	17,400	23,000	57,460
Black Canyon Area	9,275	3,000	0	1,000	11,800	25,075
Lake Pleasant Region	402,700	300,000	400,000	35,300	62,000	1,200,000
Scattered tracts	450	50	0	175	420	1,095
TOTALS	439,885	312,600	400,400	68,075	123,020	1,343,980

Source: Phoenix District files.
Recreation Management Information System data.



Two R&PP leases, totaling 2,552 acres, would be granted to local and state government. Transferring public land in the Tortolita Mountains and in the Apache Junction-Goldfield area would benefit the local governments by adding this land to their park systems. Additional state and private land would not be acquired by the BLM for park development under this alternative. Thus, the Tortolita park site probably could not be completed as planned due to land acquisition costs. It is unlikely enough county funds would be available to acquire all needed land.

The Saginaw Hill park site and the Tucson Mountain Park extension site, each identified as important recreation land by local governments, would be identified for disposal under this alternative. Funding to purchase these parcels probably would not be available, thus recreation facilities needed by burgeoning Arizona urban populations would not be developed.

Four CRMAs would be managed with local governments under *Alternative C*. The Lake Pleasant Regional Park, Picacho Mountains, Black Canyon Trail and the San Tan Mountains CRMAs would greatly enhance recreation opportunities in the RMP area by making large blocks of land near major metropolitan areas available for various open space type recreation pursuits.

Five of the six RCAs identified under this alternative would provide extensive areas of public land accessible to the public for dispersed, unstructured recreation activities. Limiting ORVs to existing roads and trails would prevent surface disturbance in these RCAs, protect the visual qualities and contribute to the visitor's recreation experience.

Legal access routes would be acquired into the Sawtooth, Picacho, Coyote and Baboquivari mountains. Recreationists would no longer experience difficulties reaching these areas because of limited access through private land.

The impacts to the Lake Pleasant and Black Canyon areas under this alternative are the same as those described under *Alternative B*.

Impacts to and visitor use levels of the Gila River canyons area are the same as those described under *Alternative B*, except that additional state land exchanges would be pursued by the BLM. The acquisition of up to 30,134 acres more state land than that described in *Alternative B* would enlarge the area available to visitors, thus enhancing all available recreation opportunities.

Impacts of *Alternative C* on the Sawtooth, Silver Bell, Coyote and Baboquivari mountains areas are similar to those of *Alternative B*, except that additional state land is proposed for acquisition in all the areas under *Alternative C*. The up to 79,000 more acres of land made available for visitor use would enhance all existing recreation opportunities.

Impacts to scattered tracts of public land are the same as those described under *Alternative B*.

Conclusion (Recreation Use). Consolidated public ownership of land in six RCAs would result in expanded opportunities for open space recreation near major metropolitan centers and more intensively managed recreation areas would be available in four CRMAs.

IMPACTS OF ALTERNATIVE D

Effects on Land Uses

Land Ownership. Under *Alternative D*, all public land (911,340 surface acres and 2,147,390 subsurface or mineral estate acres) within the RMP area would be transferred out of federal ownership. Total disposal may be constrained by various restrictions that are identified in the section on Management Guidance Common to All Alternatives in Chapter 2. However, under this alternative, it is assumed that all public land within the RMP area would be eventually disposed of.

This alternative would benefit the Arizona BLM exchange program by providing an exchange base from which public land could be exchanged for private or state land outside the RMP area.

Once the land has been transferred out of federal ownership, protection of the natural resources that are ensured by FLPMA and other federal laws and regulations would no longer apply.

Land Available for Recreation and Other Public Purposes. Under this alternative, no new R&PP leases would be authorized for public purposes. All existing R&PP leases involving 6,821 acres would be patented to the current lessees in accordance with the provisions of the R&PP Act. Leases under R&PP found not to be in compliance with approved plans of development would be subject to termination, leaving the land available for disposal by sale or exchange.

Under *Alternative D*, no additional public land in the RMP area would be made available for transfer under the R&PPA. Local governments and nonprofit organizations would be forced to purchase or lease desired parcels at a much higher cost from private entities or from the Arizona State Land Department. By precluding local governments from obtaining low cost federal land for public purposes, this alternative would further burden local budgets and ultimately the taxpayers.

Right-of-Way Development. No utility corridors would be designated under *Alternative D* as all public land would be transferred out of federal ownership. Major utility transmission systems would be allowed to crisscross private land in the RMP area without any regard for the existing corridors or regulations pertaining to federal land.

All terms and conditions of existing land use authorizations for major utility systems would need to be renegotiated with the new landowners once the BLM disposes of land containing such systems. This may result in higher costs for the continued use of existing rights-of-way across private and state land.

Land where communication sites currently exist would be required to either remove their facilities when leases expire or renegotiate terms with the new owners. This may result in increased costs for using these sites.

Transferring all public land to private or state ownership under this alternative would reduce the ability of the public to gain such authorizations. The public would be required to seek approval from new owners (private or state) for any land use authorizations, resulting in higher costs for transferred land and possible delays in obtaining authorizations.

All existing land use authorizations and rights-of-way would be honored until the land was transferred. New terms and conditions would then be renegotiated with the new landowners.

Payments in Lieu of Taxes (PILT). Disposing of 911,340 acres of public land under this alternative would reduce PILT to five Arizona counties by \$372,245 (see Table 4-1). However, the reduction in

PILT would be offset if the public land was transferred to private ownership as this land then would be added to the local tax rolls.

Conclusion (Land Uses). All 911,340 acres of surface and 2,147,390 acres of mineral subsurface estate would be identified for sale or exchange and made available for BLM exchanges in other parts of the state or for private sales. Transfer of low cost public land to local governments under the R&PPA would be eliminated, increasing costs to local governments for buying land for recreation use. The loss of \$372,245 in PILT to five counties and the cost for using private or state land rights-of-way would place severe restrictions on local governments and private industry.

Effects on Locatable Mineral Development

Under this alternative, complete disposal would seriously impact mineral exploration and development. Overall, a 90 to 95 percent reduction in active operations on public land would be expected. Nearly 95 percent of the RMP area's exploration and prospecting activities would cease, impacting small-scale miners. More importantly, exploration by individuals and large corporations would nearly cease. This would prevent the defining of new porphyry copper ore bodies.

Conclusion (Locatable Mineral Development). Exploration for and development of new discoveries would drop by 95 percent, reducing the number of active operations in the RMP area from the current 40 to two.

Effects on Watershed Condition

Under the total disposal alternative, no new watershed improvements would be implemented on what is now public land. None of the 22 Category IV watersheds currently in unsatisfactory condition would be improved to satisfactory condition. Consequently, the watersheds would continue to function poorly.

Transfer of land ownership from federal to state or private entities would have the net effect of limiting ORV use to roads and trails. Further impairment of Category II watersheds resulting from ORV disturbances would be prevented.

Conclusion (Watershed Condition). No significant changes from current conditions would occur because transfer from public ownership would prevent most future ORV damage.

Effects on Rangeland Management

Alternative D would cause the disruption of some ranch operations. If public land within a ranch is transferred to private interests in areas of growth and development, livestock would be fenced out. In some cases, development of new water sources such as wells and pipelines would be required to maintain ranch viability, resulting in large investments of time and money.

In areas identified for disposal where development does not occur, grazing is expected to continue and the impacts to ranch operations would be minimal. Blocks of public land acquired by private owners in these nondevelopment areas would, in most cases, be available for private lease to the rancher. Grazing fees on the open market, however, may be substantially more than those charged by the federal government.

Ranches would undergo a reduction in value if federal grazing leases are cancelled. On land transferred from federal to state ownership, the Arizona State Land Department generally has chosen to maintain grazing privileges.

Without federal grazing leases, the average values of small, medium and large ranches would be lowered, respectively, from \$57,000 to \$39,000, from \$208,000 to \$159,000 and from \$780,000 to \$717,000.

The greatest impact to ranch values under *Alternative D* would happen if all federal grazing leases on public land were cancelled and the land was transferred to private owners.

Conclusion (Rangeland Management). Ranch operations would be disrupted in development areas but would continue elsewhere. The expense of leasing private range, however, would greatly increase operating costs. The value of ranches losing federal leases would be reduced 32 percent on small operations, 24 percent on medium-sized ranches and eight percent on large ranches. Ranch operations and values would remain unchanged on future state leases.

Effects on Areas of Cultural Significance

Under *Alternative D*, no land acquisitions would be pursued in any of the ten significant cultural areas in the RMP area. The BLM would not be able to manage these resources for their information, public or conservation values.

Active federal protection of cultural values in the Zuni-Hardscrabble, Snowflake-Mesa Redonda, Upper Little Colorado and Perry Mesa significant cultural areas would cease. Cultural resource information, public and conservation values in these

areas would be seriously impaired due to theft and vandalism.

Vandalism and damage due to ORV activity and natural processes would be negative factors in all ten cultural areas. Under *Alternative D*, at least 390 sites, including one *National Register* site and two *National Register* districts, would be seriously impacted without federal protection. Information in Table 4-2 shows how the 10 significant cultural resource areas would be impacted under *Alternative D*.

Conclusion (Areas of Cultural Significance). Active federal protection of cultural values would cease. Cultural resource information, conservation and public values would be seriously impaired due to theft and vandalism. About 20 to 25 percent of the cultural values of at least 390 sites, including those in one *National Register* site and two *National Register* districts, would be lost.

Effects on Vegetation

Under this alternative, the BLM would identify for disposal all land it currently administers in the RMP area. Land in development areas near Phoenix and Tucson would be cleared for urban uses. Surface disturbance caused by expected development activities would cause the trend to decline on five nearby grazing allotments. The average ecological condition of these allotments would be reduced from fair to poor over the next 20 years.

Grazing would remain the primary use on four allotments. Trend would remain static on three of these allotments and continue to decline on one. The average ecological condition of these allotments would be reduced from fair to poor over the next 20 to 25 years.

Conclusion (Vegetation). The average ecological condition on six allotments covering 192,890 acres would be reduced from fair to poor over the long term.

Effects on Riparian Habitat

Under *Alternative D*, all 94 miles and 1,070 acres of the priority riparian habitat areas in the RMP area would be disposed of through sale or exchange (Appendix 7). There would be no active federal management to maintain and improve these significant areas. Under private ownership, they would be open to unmitigated impacts from development, mining activities, water removal, grazing, ORVs, rights-of-way construction and vegetative manipulation.

Over the long term, the result would be to reduce the ability of these riparian habitat areas to support diverse plant and wildlife communities, filter and purify water, reduce sediment loads, enhance soil stability and contribute to groundwater recharge and base flow.

Long-term impacts are expected to cause downward trends along portions of 7.6 miles of the 94 miles of priority riparian areas (see Table 4-3 and Figure 4-2).

Conclusion (Riparian Habitat). There would be no management to maintain, restore or improve riparian values. It is expected that cumulative impacts from surface disturbance activities on the watershed, as well as in riparian habitat, would result in impairment of riparian values along 7.6 of the total 94 miles of public habitat.

Effects on Special Status Plants

Peebles Navajo Cactus — *Pediocactus peeblesianus* var. *peeblesianus* — Federally listed — Endangered. Under *Alternative D*, the BLM would dispose of all public land containing known populations or potential habitat of Peebles Navajo cactus.

No populations of the Peebles Navajo cactus would be federally protected under this alternative. Long-term habitat destruction and loss of populations would occur, making survival of the plant in its natural habitat improbable.

Conclusion (Peebles Navajo Cactus). Without federal protection, the species would decline over the long term and probably become extinct.

Tumamoc Globeberry — *Tumamoca macdougalii* — Federally listed — Endangered. Under *Alternative D*, the BLM would dispose of all known or suitable *Tumamoca* habitat which it currently administers. This action would remove federal protection from 2.5 percent of the known population and 13 percent of the high to moderate potential *Tumamoca* habitat. In the near future, only a few of the plants would likely be destroyed, but long-term trends for the species would be downward because of expected developments on many of these parcels.

Conclusion (Tumamoc Globeberry). Implementation would result in negative impacts because 2.5 percent of the known populations and 13 percent of the high to moderate potential habitat would lose federal protection.

Nichol Turk's Head Cactus — *Echinocactus horizonthalonius* var. *nicholii* — Federally listed — Endangered. Under *Alternative D*, the BLM would dispose of the 1,960 acres of known habitat and all suitable Nichol Turk's head cactus habitat which it now administers.

Disposal would remove federal protection from any populations of the species now on BLM-administered land. Long-term population trends would be downward due to mining and commercial developments on the disposed land. Recovery and delisting of the species would be unlikely under this alternative.

Conclusion (Nichol Turk's Head Cactus). This would severely impact the species to the point where delisting would be unlikely.

Thornber Fishhook Cactus — *Mammillaria thornberi* — Federal Category 2 — Candidate. Under this alternative, the BLM would dispose of all its known and suitable habitat for the species (about 30,000 acres). Based on present inventories, 209 individual Thornber fishhook cacti are known to grow on BLM land.

Many of the known populations of *M. thornberi* on the disposal land would likely be destroyed by development. Portions of the disposed of suitable habitat would likely be developed, but about half would probably not be subject to major land use change over the next 20 years. However, plants on the undeveloped land would no longer be subject to federal protection and it is unlikely that any specific management would be implemented to protect the species.

Conclusion (Thornber Fishhook Cactus). Because most known populations are on nonpublic land, there would be only a minor negative impact on the current federal effort to conserve the species.

Sword Milkvetch — *Astragalus xiphoides* — Federal Category 1 — Candidate. Over the long term, potential exists for commercial or residential development of the sword milkvetch habitat on the parcels of public land containing the plant. Therefore, the eventual loss of four populations of *A. xiphoides* (three on private land and one on BLM land) would be expected under this alternative. The species eventually would become restricted to one Park Service locality, greatly increasing the risks to the species from local environmental factors.

Conclusion (Sword Milkvetch). Disposal of 640 acres with a population would be a major negative impact

to the conservation of the species. It would make long-term survival of the species precarious because survival would eventually become dependent upon a single population within Petrified Forest National Monument.

Paperspined Cactus — *Pediocactus papyracanthus* — Federal Category 2 — Candidate. The impacts are the same as those discussed under *Alternative B*.

Effects on Wildlife

Gila Topminnow — *Poeciliopsis occidentalis occidentalis* — Federally listed — Endangered (State-listed). Disposal of public land under *Alternative D* would negatively impact the Gila topminnow by removing the Tule Creek habitat from federal protection and as a site for maintaining a population. This population would eventually be lost because of periodic flooding.

Since the USFWS and AG&FD would not introduce endangered species on public land proposed for disposal, there would be no immediate or future introductions of Gila topminnow in the RMP area to mitigate the 1981 loss of a natural population in Cocio Wash. This would mean a 40 percent loss of BLM-identified reintroduction sites for the species.

Conclusion (Gila Topminnow). Federal recovery efforts would be set back by identifying for disposal percent of Arizona's possible reintroduction sites.

Desert Pupfish — *Cyprinodon macularius* — Federally listed — Endangered (State-listed). Disposal of public land under *Alternative D* would negatively impact the desert pupfish by removing the Mesquite Spring habitat from federal protection. Without protection through habitat management, the population would be lost as a result of expected surface disturbances or by the introductions of exotic fish species or water removal. The loss of this population, which represents 14 percent of the total number of introduced populations, would significantly affect the recovery efforts for the species.

Since the USFWS and AG&FD would not introduce fish into three RMP area sites if they were identified for disposal, there would be an 85 percent decrease in the BLM-identified reintroduction sites.

Conclusion (Desert Pupfish). Federal recovery efforts for the desert pupfish would be severely hampered, eliminating 14 percent of Arizona's federally protected populations and reducing by 85 percent the number of possible reintroduction sites in Arizona.

Little Colorado River Spinedace — *Lepidomeda vittata* — Federally Proposed — Threatened. The impacts would be the same as those discussed under *Alternative B*.

Desert Bighorn Sheep — *Ovis canadensis mexicana* — State-listed. Under *Alternative D*, crucial desert bighorn habitat in the RMP area would not be actively managed to maintain a stable population of 50 to 60 bighorn.

About 80 percent of the bighorn sheep habitat would be open to uses damaging to the habitat and disturbing to the sheep. These animals tend to avoid land used by people, vehicles and domestic cattle and sheep. An expected increase in ORV use would damage habitat and interfere with bighorn travel routes. Domestic livestock would create forage competition with bighorns, lowering the bighorn reproduction rate. Additional utility lines and communication sites would also cause the sheep to leave the area.

Conclusion (Desert Bighorn Sheep). Cumulative habitat disturbances and losses of crucial habitat would lead to the loss of the population over the long term.

Desert Tortoise — *Gopherus agassizi*. Under *Alternative D*, all of the RMP area's desert tortoise habitat would be under private or state control. Under private ownership, this land would not be managed to protect and improve desert tortoise habitat.

This land would be susceptible to impacts from ORVs, mining, rights-of-way development, grazing and urbanization. Cumulative impacts on the habitat and tortoises would result in long-term loss of tortoise populations in important habitat (Silver Bell/West Silver Bell Mountains and Donnelly Wash/Grayback area). Habitat capability would be lost on 20 percent (111,000 acres) of the public land with tortoise range, or a total of 87 percent of public land within important tortoise habitat.

Conclusion (Desert Tortoise). About 20 percent of public land habitat within general range would be lost, including 87 percent of the important habitat.

Pronghorn — *Antilocapra americana*. Under *Alternative D*, public land comprising 12 percent (9,100 acres) of the total pronghorn habitat on Sycamore and Perry mesas and in Apache and Navajo counties would be disposed of through sale or exchange. Habitat condition is expected to decline slightly to fair on the Sycamore and Perry mesas, but the habitat would continue to support the current

population. In Apache and Navajo counties, two percent of the current BLM-administered habitat would lose its value for pronghorns because of urban development.

Public land comprising 24 percent in the pronghorn travel corridor leading to Sycamore and Perry mesas is expected to be developed under private ownership, restricting pronghorn movement through the corridor. The loss of the travel corridor would lead to geographic isolation of the mesa and valley populations and a loss of genetic diversity in the herd, causing its eventual decline.

Conclusion (Pronghorn). Public land comprising two percent of the total habitat in Apache and Navajo counties would be abandoned as a result of subdivision development. The public land habitat on Sycamore and Perry mesas totaling 9,100 acres would continue to support the current numbers, but development of exchanged land in the travel corridor would result in their geographic isolation.

Mule Deer — *Odocoileus hemionus*. *Alternative D* identifies for disposal all RMP public land supporting medium to high density mule deer populations (273,000 acres). Public land comprising four percent (10,800 acres) of the total habitat is in areas likely to be developed in the future. This habitat would be abandoned by deer in the long term.

Conclusion (Mule Deer). A total of 10,800 acres (about four percent of the total habitat) supporting medium to high density mule deer populations in the RMP area would lose its value for deer. Additional declines would result from restrictions on movement and access to other use areas.

Javelina — *Dicotyles tajacu*. *Alternative D* would result in the disposal of all 526,000 acres of medium to high density javelina habitat in the RMP area. About 13 percent (66,800 acres) of this habitat would begin to be developed in the near future and would lose its value for javelina in the long term.

Conclusion (Javelina). About 10 percent of the current 526,000 acres of medium to high density habitat in the RMP area would, in the long term, lose its value for javelina.

Effects on Wild, Free-Roaming Burros

Under *Alternative D*, the existing Lake Pleasant burro herd would eventually be removed and offered to the public under the adoption program.

Conclusion (Wild, Free-Roaming Burros). Burros would be removed from the Lake Pleasant use area and offered for public adoption.

Effects on Recreation Use

Public recreation opportunities in the RMP area would be severely diminished under *Alternative D*. The loss of public land open space would force many recreationists into established parks and National Forests and result in overcrowding these facilities. Local communities would be unable to provide additional recreation facilities because land purchases would be prohibitively expensive.

All land in the RMP area would be transferred to private and state ownership. Recreation use on private land would be at the discretion of the landowner and use of state land would be allowed only for holders of permits and Arizona hunting licenses.

The cost to local governments of leasing or purchasing recreation land near metropolitan centers would run into millions of dollars without the availability of public land under the R&PP Act or through cooperative recreation management with the BLM. By precluding local governments from obtaining low cost federal land for recreation purposes, eight new or expanded recreation sites in the Phoenix and Tucson areas would probably not be developed further. The affected sites are: Lake Pleasant Regional Park and San Tan Mountains; Saginaw Hill; Sawtooth Mountains; Tucson Mountain Park Extension, Picacho Mountains, Tortolita Mountains and Goldfield.

Impacts to the Lake Pleasant Regional Park would be similar to those described under *Alternative A*, except that public land would not be available to absorb visitor use overcapacity. If the park is able to lease or buy state or private land and remains open, its visitor capacity would be 75 percent below public demand. The lake would be surrounded by state and private land with limited access and park development. Loss of water-associated recreation opportunities would be severely felt in the Phoenix metropolitan area.

A large block of open space public land near Phoenix (the Lake Pleasant region) would be unavailable for public use under this alternative. Increasing demands for motorized and nonmotorized recreation opportunities would be unmet. While regional parks near Phoenix could absorb some of this use, these parks are intensively managed and do not provide dispersed recreation activities like hunting and off-highway and all-terrain vehicle use.

In the Black Canyon area, the Black Canyon Hiking and Equestrian Trail would be forgone. All

recreation opportunities for nonmotorized use would end in this area and other recreation use would be curtailed by private and state land ownership.

The Trans-Arizona Trail would not be established and all other scenic, cultural, wildlife and off-highway vehicle recreation opportunities would greatly diminish in the Gila River canyons area. Most visitors to this area would have to visit the Tonto National Forest for open space and dispersed recreation opportunities.

Except for hunting, all recreation visitor use of the Picacho Mountains would drop to zero because no legal access would exist.

In the Sawtooth and Silver Bell mountains complex, hunting use would continue on state land. All other recreation opportunities would, however, be at the discretion of private landowners and few recreation opportunities would be available for the public.

Outstanding and singular mountain climbing and other nonmotorized recreation opportunities could become unavailable for public use in the Coyote and Baboquivari mountains. The demand for additional high quality primitive recreation opportunities in the Tucson region would not be satisfied.

Conclusion (Recreation Use). Public land needed for open space recreation would be severely reduced and prohibitive costs would limit the ability of local governments to buy needed recreation land near metropolitan areas. Up to 176,000 public land recreation visits would be immediately displaced and 842,000 recreation visits lost over the long term.



MITIGATING MEASURES

No specific mitigation measures have been identified in this RMP/EIS that would reduce the impacts of implementing any of the four alternatives. Mitigation is deemed necessary when the BLM begins implementing specific projects identified in the RMP/EIS. At that time, an environmental assessment identifying the environmental impacts of each project will be discussed and specific mitigation measures will be incorporated into the assessment to lessen those impacts. Therefore, mitigation measures will be incorporated on a site-specific basis as this RMP is implemented.

UNAVOIDABLE ADVERSE IMPACTS

No mitigation measures have been identified to lessen the adverse impacts of implementing the alternatives in this RMP/EIS. When the BLM begins implementing the plan, site-specific mitigation will be developed to mitigate the impacts identified during the environmental assessment process. At this time, all adverse impacts identified in this RMP/EIS are considered unavoidable.

SHORT-TERM USE VERSUS LONG-TERM PRODUCTIVITY

The basic objective of the RMP/EIS is to provide for efficient and environmentally sound long-term management of the public land and resources in the Phoenix RMP area. To accomplish this objective, it is anticipated that the BLM will dispose of some land containing resource values that would be better protected under federal ownership. However, the benefits of achieving the long-term objectives of this plan outweigh the short-term loss of some resource values that would occur as the plan is implemented.

The land tenure adjustment program identified in the RMP/EIS has many such short-term tradeoffs. Scattered public land that provides limited recreation opportunities would be exchanged for large blocks that would provide extensive recreation opportunities near large population centers. Land identified for disposal may contain one or more resource values that would benefit from federal protection; however, through the disposal of these tracts, the BLM is able to acquire land and consolidate ownership in areas containing more or higher resource values than those

present on the disposal parcels. Therefore, over the short term, land disposals may negatively impact some resources that over the long term would be greatly benefited.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

It is assumed that effects (impacts) to resources from implementing the alternatives chosen for study would be both irreversible and irretrievable over the long term (five to 20 years). A discussion of both direct (immediate) and indirect (future) effects is included in the environmental consequences narrative for each alternative and capsulized in Table S-1.



CONSULTATION AND COORDINATION 5





CHAPTER 5

CONSULTATION AND COORDINATION

INTRODUCTION

The *Phoenix Resource Management Plan/Environmental Impact Statement* (RMP/EIS) was prepared by specialists from the Phoenix District Office and the Phoenix Resource Area. The Arizona State Office planning staff and resource specialists provided technical reviews and suggestions. Development of this RMP/EIS began in 1986.

LIST OF PREPARERS

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Joyce created the land status maps and was responsible for verifying the cartographic input and all land status information. She has worked for the BLM for 14 years.

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Myrna Fink

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The following people from the Arizona State Office provided technical assistance and review for this RMP/EIS.

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Eugene Dahlem, Wildlife Biologist
Judith A. McDonald, Cartographic Technician
Daniel J. McGlothlin, Hydrologist
Andrea Nygren, Public Affairs Specialist
Keith L. Pearson, Planning and Environmental Coordinator
Alan S. Rabinoff, Geologist
George W. Ramey, Jr., Range Conservationist
Gary D. Stumpf, Archaeologist
Larry D. Taddia, Supervisory Cartographic Technician
Bruce B. Talbot, Outdoor Recreation Planner
Marvin E. Weiss, Natural Resource Specialist

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Karen Daniels, Computer Specialist

Kenneth R. Drew, Assistant District Manager, Operations

Russell W. Krapf, Soil Scientist

Robert D. Mitchell, Range Conservationist

William J. Ruddick, Realty Specialist

Richard Thomas, Public Affairs Specialist

SCOPING (Issue Identification)

Scoping served to identify the significant issues to be analyzed in the RMP/EIS and de-emphasized or eliminated from detailed study insignificant issues or issues addressed in earlier environmental reviews. The significant environmental issues were then incorporated into a range of alternatives, and the effects or impacts of implementing the alternatives were analyzed in this RMP/EIS.

The BLM held several public scoping meetings to help identify public concerns about issues. Based on professional judgment, BLM resource specialists also identified issues. A review of all issues by resource managers and an interdisciplinary team concluded the scoping process.

The scoping process for the RMP/EIS area involved several phases, extending from February 1986 to January 1987.

PUBLIC INVOLVEMENT AND CONSULTATION DURING DEVELOPMENT OF THE DRAFT RMP/EIS

An active public participation program was conducted from the start of the planning process for this document. The following section lists the public meetings, RMP newsletters issued and meetings among RMP team members and/or BLM management with individuals and groups.

January 1986

Federal Register notice, press release and public mailing (900 individuals and groups) announcing the beginning of the Phoenix RMP/EIS and inviting public participation on issue identification.

February 1986

Public meetings held in Tucson, Phoenix, Holbrook and St. Johns to solicit comments on planning issues.

May 1986

Issue newsletter (900 recipients) with issue identification results.

March through September 1986

Interest group scoping meetings included environmental groups, special interest public land users, city, county, state and federal government officials and Indian tribal councils.

November 1986

Issue newsletter (900 recipients) to solicit comments on preliminary alternatives.

December 1986

Public meetings in Tucson, Phoenix, Holbrook and St. Johns to solicit comments on alternatives.

January through July 1987

Continue meetings with interest groups and individuals to discuss alternatives.

July 1987

Issue newsletter describing final list of alternatives chosen for study in the RMP/EIS.

LIST OF AGENCIES, ORGANIZATIONS AND PERSONS TO WHOM COPIES OF THIS STATEMENT WILL BE SENT

The BLM is requesting comments on the draft RMP/EIS from all interested individuals, federal and state agencies and interest groups. Because of the size of the mailing list (900), only a partial list of those who will receive the document follows.

FEDERAL AGENCIES

Advisory Council on Historic Preservation
Department of Agriculture
Forest Service
Soil Conservation Service
Department of Defense
Army Corps of Engineers
U.S. Air Force
Department of Energy
Department of the Interior
Bureau of Indian Affairs

Bureau of Mines
Bureau of Reclamation
Department of Transportation
Federal Aviation Administration
Fish and Wildlife Service
Geological Survey
National Park Service
Environmental Protection Agency

ARIZONA STATE AGENCIES

Arizona Commission of Agriculture and Horticulture
Arizona Department of Environmental Quality
Arizona Department of Health Services
Arizona Department of Library, Archives, and Public Records
Arizona Department of Transportation
Arizona Game and Fish Department
Arizona Office of Economic Planning and Development
Arizona Oil and Gas Commission
Arizona Outdoor Recreation Coordinating Commission
Arizona State Clearinghouse
Arizona State Historic Preservation Officer
Arizona State Land Commissioner
Arizona State Parks Board
Arizona Water Resources Department
Bureau of Geology and Mineral Technology
Governor's Commission on Arizona Environment
Mineral Resource Department

LOCAL AGENCIES

Central Arizona Association of Governments
City of Casa Grande
City of Eloy
City of Phoenix
City of Superior
City of Tucson
Gila County Planning and Zoning Department
Maricopa County Association of Governments
Maricopa County Board of Supervisors
Maricopa County Parks Department
Maricopa County Planning and Zoning Commission
Mohave County Board of Supervisors
Mohave County Planning and Zoning Commission
Northern Arizona Council of Governments
Pima County Association of Governments
Pima County Board of Supervisors
Pima County Parks and Recreation Department
Pima County Planning and Zoning Department
Pinal County Board of Supervisors
Pinal County Planning and Zoning Department
Yavapai County Board of Supervisors
Yavapai County Planning and Zoning Department

INDIAN TRIBES AND COUNCILS

Ak-Chin Indian Community
Port McDowell Mohave-Apache Community Council
Gila River Indian Community
Hopi Tribal Council
Navajo Tribal Council
Pascua Yaqui Tribal Council
Salt River Pima-Maricopa Community Council
Tohono O'Odham Council
Yavapai-Apache Community Council
Yavapai-Prescott Board of Directors

INTEREST GROUPS

Arizona Cattle Growers Association
Arizona Desert Bighorn Sheep Society
Arizona Mining Association
Arizona Mining and Prospecting Association
Arizona Nature Conservancy
Arizona Outdoor Coalition
Arizona Prospectors and Small Mine Operators Association
Arizona Public Service
Arizona State Association of Four-Wheel-Drive Clubs, Incorporated
Arizona Wildlife Federation
Audubon Society
Bureau of Land Management Advisory Board
Defenders of Wildlife
Desert Tortoise Council
International Society for the Protection of Mustangs and Burros
Kingman Grazing Advisory Board
League of Women Voters
National Audubon Society

Natural Resources Defense Council, Incorporated
New Mexico and Arizona Land and Cattle Company
News Media
Oil and Gas Companies
ORV Clubs
Phoenix District Advisory Council
Phoenix-Lower Gila Resource Areas Grazing Advisory Board
Public Lands Council
Rockhound Clubs
Santa Fe Minerals
Sierra Club, Grand Canyon Chapter
Sierra Club, Rincon Chapter
Sierra Club, Southwest Office
United Four-Wheel-Drive Association
Wild Burro Protection Association
The Wilderness Society
Wildlife Society
Yuma Audubon Society

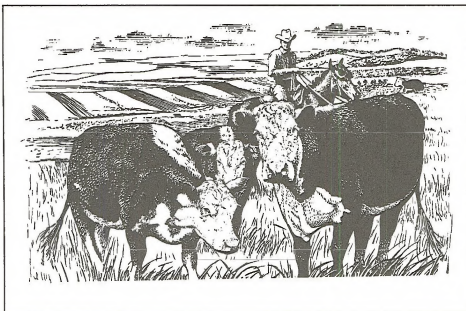
ELECTED REPRESENTATIVES

Federal

Senator Dennis DeConcini
Senator John McCain
Representative Jim Kolbe
Representative Jon Kyl
Representative Bob Stump
Representative Morris K. Udall
Representative John J. Rhodes III

State

Governor Evan Mecham
Representative Joe Lang, Speaker of the House
Senator Carl J. Kunasek, President of the Senate



APPENDICES



APPENDIX 1

RMP AREA LAND MEETING FLPMA SALES CRITERIA

Township	Range	Section(s)	Acres	Area
T. 11 N.	R. 22 E.	12	200	North of Silver Creek
T. 11 N.	R. 24 E.	26	320	
T. 13 N.	R. 18 E.	4	639.94	
T. 13 N.	R. 24 E.	26	160	West of Concho
T. 13 N.	R. 25 E.	4,6,18	321.33	Northwest of Concho
T. 14 N.	R. 17 E.	8,22,24	800	
T. 14 N.	R. 18 E.	28	320	North of Concho
T. 15 N.	R. 16 E.	6	117.55	
T. 15 N.	R. 25 E.	32	120	
T. 16 N.	R. 16 E.	28	640	
T. 17 N.	R. 16 E.	24	698.04	
T. 17 N.	R. 17 E.	28	480	North of Winslow
T. 20 N.	R. 15 E.	24	120	
T. 20 N.	R. 16 E.	6	547.93	
T. 18 N.	R. 16 E.	4	159.96	South of Winslow
T. 20 N.	R. 22 E.	30	333.89	Between Scottsdale and Mesa
T. 1 N.	R. 5 E.	4	48.70	
T. 1 N.	R. 14 E.	13,14,15,22,23,24,25,26, 27,34,35,36	2,862.32	Near Miami
T. 1 N.	R. 15 E.	9,10,11,12,13	2,614.62	Near Globe and Miami
T. 1 N.	R. 15 E.	14,15,16,17,18,23,24,25,31		Near Globe
T. 1 N.	R. 15½ E.	10,15,22,23,24,26,27	870.17	Near Litchfield/Youngtown
T. 2 N.	R. 1 W.	1,13,24,25	185	North Phoenix
T. 2 N.	R. 3 E.	26	70.5	
T. 2 N.	R. 6 E.	33	40	South of Salt River Indian Res.
T. 4 N.	R. 4 E.	33,35	140	Northwest Phoenix
T. 5 N.	R. 3 E.	1	40	Southwest of Cave Creek
T. 5 N.	R. 4 E.	6	40	Southwest of Cave Creek
T. 6 N.	R. 3 E.	35	5	Southwest of Cave Creek
T. 6 N.	R. 4 E.	1,11,12	314.83	North of Cave Creek
T. 11 N.	R. 3 W.	4,6,7,8,17,18	1,184.09	North of Wagoner
T. 14 N.	R. 2 W.	8	238.08	Willow Adm. Site (FS)
T. 14 N.	R. 1 W.	28,31,33	100	Northeast of Prescott
T. 16 N.	R. 1 W.	1	585.84	East of Chino Valley
T. 16 N.	R. 1 E.	6,21	79.83	East of Chino Valley
T. 1 S.	R. 10 E.	6,7,25,30,31,33,34	733.43	Queen Valley
T. 2 S.	R. 10 E.	3,4	161.65	Queen Valley
T. 4 S.	R. 8 E.	12,13	510	Northwest of Florence
T. 4 S.	R. 9 E.	7,11,18,26,27	984.25	Northwest of Florence
T. 5 S.	R. 4 E.	13	160	South of Gila River Indian Res.
T. 5 S.	R. 6 E.	23	160	South of Gila River Indian Res.
T. 5 S.	R. 8 E.	34	21.29	North of Randolph
T. 5 S.	R. 2 E.	28,33	600	Northwest of Stanfield
T. 6 S.	R. 2 E.	9,25,27	757.56	West of Stanfield
T. 6 S.	R. 3 E.	33	480	Southwest of Stanfield
T. 6 S.	R. 10 E.	30	121	East of Picacho Reservoir
T. 7 S.	R. 10 E.	14	320	Southeast of Picacho Res.
T. 6 S.	R. 13 E.	1	80.23	West of Dudleyville*
T. 6 S.	R. 14 E.	4,5	414.01	West of Dudleyville*
T. 6 S.	R. 13 E.	25	520	Near Black Mtn.
T. 7 S.	R. 13 E.	27,34	200	Near Black Mtn.
T. 7 S.	R. 14 E.	6,30	685.79	Near Black Mtn.
T. 8 S.	R. 14 E.	9,15	480	Near Black Mtn.

(Continued on next page)

APPENDIX 1 (Continued)

Township	Range	Section(s)	Acres	Area
T. 7 S.	R. 4 E.	10,15,21,27,28,30,31,34,35	3,200	South of Stanfield
T. 7 S.	R. 6 E.	26	80	North of Arizona City
T. 8 S.	R. 10 E.	27,34,35	280	East of Newman Peak
T. 8 S.	R. 12 E.	6,18,19,26,32,33	982.64	Northwest of Oracle Jct.
T. 10 S.	R. 6 E.	30,31	957.72	South of Sawtooth Mtns.**
T. 11 S.	R. 6 E.	3,5,6,7,10	2,234.35	South of Sawtooth Mtns.**
T. 10 S.	R. 7 E.	12,13,24	1,880	South of Friendly Corners
T. 10 S.	R. 9 E.	17	40	West of Red Rock
T. 10 S.	R. 12 E.	19,21,22,30	987.48	North of Tortolita Mtns.
T. 12 S.	R. 10 E.	23	40	Southwest of Marana
T. 12 S.	R. 11 E.	25,33	861.16	North of Saguaro National Monument
T. 13 S.	R. 11 E.	5,29	195	North & West of Saguaro National Monument
T. 13 S.	R. 12 E.	9,28,33,34	457.48	East of Saguaro National Monument
T. 14 S.	R. 11 E.	4	40	South of Saguaro National Monument
T. 16 S.	R. 9 E.	1	138.96	Three Points
T. 16 S.	R. 10 E.	5,6,17	239.02	Three Points
T. 16 S.	R. 11 E.	4,35	1,345.61	West & South of Yavapai Indian Res.
T. 16 S.	R. 18 E.	22	200	Near Pantano
T. 18 S.	R. 15 E.	10,11,14,15,22, 23	1,034.125	Near Santa Rita Mtns.
T. 18 S.	R. 17 E.	7,8,17,18	457.70	Empire Mtns.
T. 18 S.	R. 17 E.	1	23.67	South of Pantano
T. 19 S.	R. 7 E.	35	30.97	East of Baboquivari Mtns.
T. 20 S.	R. 7 E.	3,10,11,21	561.42	East of Baboquivari Mtns.
T. 20 S.	R. 9 E.	23,24,25,26	796.32	Las Guijas Mtns.
T. 20 S.	R. 10 E.	15,16,17,22,25,30,31,36	2,820.45	Las Guijas Mtns.
T. 21 S.	R. 10 E.	4,5,6,7,8,17,18,19	2,232.47	Las Guijas Mtns.
T. 20 S.	R. 14 E.	31	79.48	Southeast of Amado
T. 21 S.	R. 9 E.	27,34	650.996	Southwest of Arivaca
T. 22 S.	R. 10 E.	24	80	Near Oro Blanco
T. 23 S.	R. 14 E.	18	16.06	North of Nogales

*Alternative C only

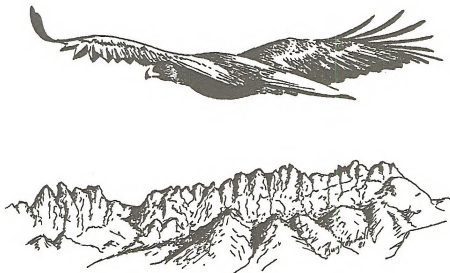
**Alternative B only

TOTALS

Alternative B — 45,236 acres

Alternative C — 42,538 acres

Source: Phoenix District files.



APPENDIX 2

EASTERN ARIZONA GRAZING EIS MANAGEMENT CATEGORIES AND RANKING OF ALLOTMENTS

*Improved Category		
Rank	Allotment Number	Allotment Name
1	6239	U-Cross
2	6103	11-L
3	6020	Agua Blanco
4	6169	Cocoraque Butte
5	6168	Sycamore Creek
6	6183	Grayback Mountain

*Maintain Category		
Rank	Allotment Number	Allotment Name
1	6161	Bumble Bee
2	6005	Cordes Junction
3	6215	Williams Mesa
4	6223	Crown Point
5	6227	Jesus Canyon
6	6222	King Solomon Gulch
7	6072	Malpais Hill
8	6029	Silverbell Peak
9	6016	Tiger Mountain
10	6197	Mineral Mountain
11	6120	Tortilla Mountain
12	6126	Waterman Peak
13	6104	VX Ranch
14	6243	Buckhorn Mountains
15	6111	North Butte
16	6042	Indian Camp
17	6032 ¹	Box O Wash
18	6026	Banty Creek
19	6067	Ripsey
20	6125	Hackberry Wash
21	6244	Cat Hills
22	6095	Bo-Nine
23	6047 ²	Monument Hill Cell

*Custodial Category (Not ranked)			
Allotment Number	Allotment Name	Allotment Number	Allotment Name
6001	Twin Buttes	6015	Ash Mountain
6002	Grovers Hill	6017	Manila Wash
6003	Arivaca Ranch	6018	Martinez Wash
6004	Newman Peak	6019	Tucker Flat
6006	North Star Mine	6021	Minnehaha Creek
6007	Washboard Wash	6022	Fresnaf Canyon
6008	Ramsey Slide	6023	Cerro Colorado
6009	Alamo Wash	6024	Relic Point
6010	Blanco Wash	6027	Yarber Wash
6011	Mayer	6028	Little Ortega Lake
6012	Bluebell	6030	Santan Mountains
6013	Maggie Mine	6031	Thomas Canyon
6014	Lost Gulch	6033	St. Johns

(Continued on next page)

APPENDIX 2 (Continued)

*Custodial Category (Not ranked)			
Allotment Number	Allotment Name	Allotment Number	Allotment Name
6034	White Mountain Lake	6099	Sleeping Beauty Mtn.
6035	Hassayampa River	6100	Saucito Mountain
6036	Solomon Butte	6102	Old Sasco
6037	Dry Lake	6105	Yuma Mine
6038	Toitec Divide	6106	Black Mesa
6039	Brady Wash	6107	Snowflake
6040	Aguirre Pass	6108	Twin Wells
6041	Walker Butte	6109	New River
6044	Lake Pleasant	6110	Hardscrabble Wash
6045	Sycamore Mesa	6112	El Tule
6046	Hackberry Mine	6113	Cochran
6048	Texas Gulch	6114	Chevelon Creek North
6049	Milky Wash	6115	Demetrie Wash
6050	Buckeye Mountain	6116	Sacaton
6051	Puerco River	6118	Horse Hills
6052	The Divide	6119	Black Hills
6053	Florence Junction	6121	Tortolita Mountains
6054	Picture Rock Road	6122	Black Canyon City
6055	Avra Valley	6123	Suffering Wash
6056	West Wing Mountain	6124	Antelope
6057	Hackberry Gulch	6127	Marcou Mesa
6058	Pink Cliffs	6128	Squaw Creek
6060	Kearny	6132	China Wash
6061	Mesa Parada	6133	Gunnery
6062	Olsen Wash	6134	North Cerro Hueco
6063	Cactus Basin	6135	Poland Junction
6064	Lost Tank Canyon	6136	Ortega Sink
6065	Chaparral Gulch	6137	Three Peaks
6066	Big Rebel Mine	6139	Copper Mountain
6068	Sawtooth Mountain	6140	Cerro Hueco
6069	Scraper Knoll	6141	Richville
6070	Big Hollow Wash	6142	Walker Creek
6071	Wildcat Creek	6143	Big Bug Creek
6073	Apache Butte	6144	Durham Wash
6074	Flying Butte	6147	Wagoner
6075	Mammoth Wash	6148	Dry Creek
6076	Straddling Lake	6149	Pipeline
6078	Cottonwood	6150	Buckhorn Creek
6079	Cottonwood Wash	6151	Guild Wash
6080	Buzzards Roost	6153	Red Hill
6081	Zuni Wash	6155	Carrizo Wash
6082	Rescue Canyon	6156	Cedar Lake Wash
6083	Parker Wash	6157	St. Johns Wash
6084	Sheepskin Wash	6158	Little Electric
6085	San Luis Mountain	6159	Little Reservoir
6086	Woodruff Butte	6160	Carrizo Wash East
6087	Potato Wash	6162	Cactus Forest
6088	Hunt Valley	6164	Black Ridge
6089	Baboquivari Mountain	6165	Twin Butte East
6091	Leroux Wash	6166	Twin Butte West
6092	Digger Wash	6167	Aguirre Valley
6093	Coyote Mountain	6170	Zuni River
6094	Dewey	6172	Mesa Wash
6096	Zion	6173	Queen Valley
6097	Arkansas Gulch	6174	Palo Verde Mountains
6098	Gravel Pit	6175	Picture Rocks

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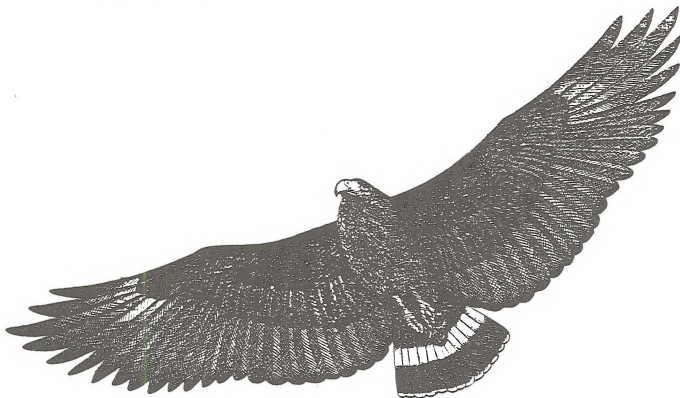
APPENDIX 2 (Continued)

*Custodial Category (Not ranked)			
Allotment Number	Allotment Name	Allotment Number	Allotment Name
6176	Puerco Ridge	6210	Joseph City South
6180	Mexican Wash	6212	Twin Peaks
6181	Humboldt	6213	Osborne Spring Wash
6182	Badger Spring Wash	6214	Phoenix Park Wash
6184	Hidden Lake	6216	Cave Creek
6185	Beardsley Canal	6219	Gillette
6186	Arroyo Seco	6220	Gold Basin
6187	Hewitt Road	6224	Salado
6188	Lynx Creek	6225	Holbrook
6190	Zuni Wash Bridge	6226	Smelter Canyon
6191	Gunsight Mountain	6228	Flint Knoll
6194	Sacaton Mountains	6229	Green Gulch
6195	Surprise Valley	6230	Wiregrass Lake
6196	Cinder Pit	6231	Lyman Lake South
6198	Ritchey Peak	6232	Little Colorado River
6200	Three Points	6234	Cow Canyon
6201	Galena Gulch	6235	Bloody Basin
6202	Chevelon Creek South	6238	Antelope Creek
6203	Cocio Wash	6241	Lithodendron Wash
6204	Valencia Mountain	6242	Silver Creek
6205	Crazy Creek Cell	6245	Humbug
6206	Castle Hot Springs	6246	Cottonwood Creek
6207	Volcanic Ridge	6252	Mud Springs

¹Includes allotment 6251.

²Includes allotments 6145, 6146, 6152, 6154 and 6250.

Source: Phoenix District files.



APPENDIX 2 (Continued)

*Criteria for placement of allotments into categories are as follows:

Improve (I) Category:

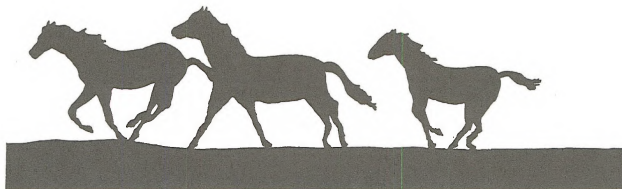
- Present range condition is unsatisfactory.
- Allotments have moderate to high resource production potential and are producing at low to moderate levels.
- Serious resource-use conflict/controversy exists.
- Opportunities exist for positive economic return from public investments.
- Present management appears unsatisfactory.

Maintain (M) Category:

- Present range condition is satisfactory.
- Allotments have moderate or high resource production potential and are producing near their potential (or trend is moving in that direction).
- No serious resource-use conflict/controversy exists.
- Opportunities may exist for positive economic return from public investments.
- Present management appears satisfactory.

Custodial (C) Category:

- Present range condition is not a factor.
- Allotments have low resource production potential and are producing near their potential.
- Limited resource-use conflict/controversy may exist.
- Opportunities for positive economic return on public investment do not exist or are constrained by technological or economic factors.
- Present management appears satisfactory and is the only logical practice under existing resource conditions.
- Other criteria appropriate to EIS area.



APPENDIX 3

EASTERN ARIZONA GRAZING EIS SUMMARY AND PREDICTED CHANGES IN PREFERENCE

Allot. No.	Cat. M,I,C	BLM Acres	BLM Acres/Cond. Class				BLM Acres/ Apparent Trend			BLM AUMs	
			Poor	Fair	Good	Excel	Down	Static	Up	Current/Long Term	
6001	C	4860	1239	2731	723	167	410	3802	648	560	560
6002	C	320	—	—	—	—	—	—	—	24	24
6003	C	1564	—	78	1486	—	—	1564	—	324	324
6004	C	6994	—	1236	4319	1439	—	6994	—	119	119
6005	M	8763	719	7598	40	406	1770	6993	—	1250	1250
6006	C	3759	159	3566	34	—	—	3759	—	432	432
6007	C	8018	—	1284	4970	1764	1284	5371	1363	600	600
6008	C	40	—	—	—	—	—	—	—	12	12
6009	C	595	—	515	80	—	—	595	—	98	98
6010	C	2318	—	2138	180	—	—	2318	—	200	200
6011	C	1233	60	1160	—	13	283	950	—	240	240
6012	C	120	—	120	—	—	30	90	—	24	24
6013	C	3328	33	2363	932	—	—	3328	—	564	564
6014	C	2434	—	2411	—	23	—	2434	—	324	324
6015	C	586	—	586	—	—	—	586	—	72	72
6016	M	4610	255	2611	1744	—	—	4610	—	718	718
6017	C	354	—	35	290	29	35	319	—	60	60
6018	C	200	—	—	—	—	—	—	—	42	42
6019	C	548	—	302	246	—	—	548	—	72	72
6020	I	8605	2943	3296	2366	—	—	8605	—	528	729*
6021	C	345	69	276	—	—	69	276	—	60	60
6022	C	600	—	248	352	—	—	600	—	72	72
6023	C	1780	853	79	848	—	138	1007	635	336	336
6024	C	120	—	—	120	—	—	120	—	24	24
6026	M	7238	—	7238	—	—	—	7238	—	1104	1104
6027	C	846	—	846	—	—	326	43	477	158	158
6028	C	320	—	320	—	—	—	320	—	60	60
6029	M	7268	—	4276	2557	435	—	5619	1649	540	540
6030	C	2063	825	1238	—	—	722	1341	—	119	119
6031	C	331	—	32	—	299	—	73	258	36	36
6032	M	10255	1935	5229	2591	500	—	10255	—	588	588
6033	C	1273	—	195	1078	—	—	1273	—	216	216
6034	C	240	—	—	—	—	—	—	—	36	36
6035	C	40	—	40	—	—	—	40	—	12	12
6036	C	1880	—	—	1880	—	—	1880	—	324	324
6037	C	2576	—	259	2317	—	—	2576	—	444	444
6038	C	120	—	54	60	6	—	120	—	24	24
6039	C	14369	2443	11332	594	—	1154	13215	—	1488	1488
6040	C	7704	—	5950	1754	—	—	7704	—	432	432
6041	C	994	—	—	—	—	—	—	—	0	0
6042 ¹	M	15765	1455	9269	5041	—	—	15765	—	1464	1464
6044	M	12610	141	10649	1412	408	141	12469	—	936	936
6045	C	1275	—	—	1211	64	—	1275	—	240	240
6046	C	65	—	65	—	—	—	65	—	12	12
6047 ²	M	11129	—	2304	8825	—	—	11129	—	1416	1416

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APPENDIX 3 (Continued)

Allot. No.	Cat. M,I,C	BLM Acres	BLM Acres/Cond. Class				BLM Acres/ Apparent Trend			BLM AUMs	
			Poor	Fair	Good	Excel	Down	Static	Up	Current/Long Term	
6048	C	256	—	238	18	—	13	225	18	48	48
6049	C	120	—	—	—	—	—	—	—	12	12
6050	C	889	163	726	—	—	163	726	—	94	94
6051	C	5104	—	1378	2807	919	664	4440	—	780	780
6052	C	2400	—	624	1776	—	—	2400	—	456	456
6053	C	249	—	—	—	—	—	—	—	24	24
6054	C	35	—	35	—	—	—	35	—	2	2
6055	C	489	—	489	—	—	—	489	—	31	31
6056	C	1880	—	737	1143	—	—	1880	—	0	0
6057	C	481	165	316	—	—	165	316	—	84	84
6058	C	3855	—	—	3855	—	—	3855	—	648	648
6060	C	1038	98	940	—	—	—	1038	—	108	108
6061	C	4090	—	—	4090	—	—	4090	—	624	624
6062	C	40	—	40	—	—	—	40	—	12	12
6063	C	2965	88	1281	1514	82	252	2713	—	504	504
6064	C	15716	—	3142	11316	1258	1414	14302	—	2364	2364
6065	C	2135	182	1882	—	71	680	1183	272	408	408
6066	C	226	—	113	113	—	—	226	—	36	36
6067	M	15962	622	9622	5446	272	166	14681	1115	1668	1668
6068	C	32127	3695	15556	9440	3436	3419	28708	—	2259	2259
6069	C	320	—	—	320	—	—	320	—	36	36
6070	C	636	—	121	515	—	—	636	—	84	84
6071	C	1448	—	—	1448	—	—	1448	—	276	276
6072	M	28743	2512	18275	7518	438	—	26748	1995	540	540
6073	C	6703	—	2237	3457	1009	1001	5702	—	756	756
6074	C	5123	—	513	4047	563	52	5071	—	480	480
6075	C	4231	434	1436	2322	39	—	4231	—	240	240
6076	C	835	—	—	835	—	—	835	—	132	132
6078	C	722	—	—	—	—	—	—	—	84	84
6079	C	40	—	40	—	—	—	40	—	12	12
6080	C	498	—	—	—	—	—	—	—	48	48
6081	C	1120	—	432	688	—	—	1120	—	192	192
6082	C	1541	—	1541	—	—	—	1541	—	300	300
6083	C	12388	—	11732	666	—	—	12388	—	1020	1020
6084	C	135	—	—	135	—	—	135	—	14	14
6085	C	408	59	237	112	—	44	364	—	84	84
6086	C	595	—	149	296	150	149	356	90	108	108
6087	C	3233	—	1763	1470	—	112	3121	—	432	432
6088	C	676	—	254	422	—	—	676	—	120	120
6089	C	1455	—	856	—	599	—	1455	—	240	240
6091	C	1890	—	—	587	1303	—	1890	—	180	180
6092	C	334	—	—	301	33	—	334	—	36	36
6093	C	5083	—	762	2542	1779	—	5083	—	384	384
6094	C	1170	534	611	—	25	534	636	—	180	180
6095	M	30712	3222	18708	8731	51	52	29937	723	1570	1570
6096	C	40	—	40	—	—	—	40	—	12	12
6097	C	376	—	376	—	—	188	188	—	36	36
6098	C	160	—	160	—	—	—	160	—	12	12

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APPENDIX 3 (Continued)

Allot. No.	Cat. M,I,C	BLM Acres	BLM Acres/Cond. Class				BLM Acres/ Apparent Trend			BLM AUMs	
			Poor	Fair	Good	Excel	Down	Static	Up	Current/Long Term	
6099	C	861	—	—	—	—	—	—	—	120	120
6100	C	2606	—	229	2377	—	—	2606	—	144	144
6102	C	4471	—	4471	—	—	—	4471	—	384	384
6103	I	18171	3501	12645	1544	481	1714	16457	—	1824	2006*
6104	M	9091	—	4316	3505	1270	—	7820	1271	679	679
6105	C	160	—	—	160	—	—	75	85	12	12
6106	C	3950	—	—	3950	—	—	3950	—	744	744
6107	C	186	—	—	—	—	—	—	—	24	24
6108	C	1159	—	244	683	232	—	1159	—	156	156
6109	C	742	—	396	346	—	22	720	—	56	56
6110	C	18124	—	2188	15936	—	—	18124	—	1488	1488
6111	M	10883	542	6383	3660	298	450	10433	—	1224	1224
6112	C	320	—	—	320	—	—	320	—	60	60
6113	C	1688	—	1688	—	—	—	1688	—	168	168
6114	C	1286	—	206	1016	64	167	1119	—	180	180
6115	C	222	11	211	—	—	—	222	—	24	24
6116	C	160	—	—	—	—	—	—	—	0	0
6118	C	414	—	—	—	—	—	—	—	48	48
6119	C	3082	123	1118	1336	505	—	2956	126	408	408
6120	M	21610	918	12242	7870	580	—	16041	5569	2256	2256
6121	C	920	—	881	—	39	—	920	—	84	84
6122	C	700	—	700	—	—	—	700	—	96	96
6123	C	964	—	—	—	—	—	—	—	192	192
6124	C	320	—	—	—	—	—	—	—	36	36
6125	M	8267	47	3345	4688	187	—	8267	—	792	792
6126	M	16144	973	13206	1915	50	—	16144	—	799	799
6127	C	6309	1433	2896	1980	—	—	6309	—	924	924
6128	C	13122	1150	6883	4423	26	384	12098	—	1747	1747
6132	C	4298	40	2580	1384	294	—	4298	—	564	564
6133	C	1825	1277	548	—	—	1186	639	—	167	167
6134	C	1280	—	640	640	—	—	1280	—	288	288
6135	C	1578	586	916	—	76	968	610	—	276	276
6136	C	1880	447	434	999	—	221	1659	—	360	360
6137	C	561	—	28	—	533	—	28	533	84	84
6139	C	1455	56	1399	—	—	351	1104	—	224	224
6140	C	3200	—	1232	1968	—	—	3200	—	696	696
6141	C	240	—	—	240	—	—	240	—	48	48
6142	C	1622	—	1570	—	52	—	1622	—	252	252
6143	C	414	—	414	—	—	77	337	—	75	75
6144	C	24401	—	24155	246	—	—	24401	—	2331	2331
6147	C	120	114	6	—	—	—	120	—	12	12
6148	C	2375	—	262	1614	499	262	2113	—	420	420
6149	C	280	—	80	40	160	60	100	120	36	36
6150	C	640	—	640	—	—	—	640	—	72	72
6151	C	5331	—	5331	—	—	—	5331	—	0	0
6153	C	12737	—	12737	—	—	—	12737	—	1452	1452
6155	C	4986	—	311	4560	115	—	4986	—	756	756
6156	C	18853	626	7052	11175	—	947	14970	2936	2796	2796

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APPENDIX 3 (Continued)

Allot. No.	Cat. M,I,C	BLM Acres	BLM Acres/Cond. Class				BLM Acres/ Apparent Trend			BLM AUMs	
			Poor	Fair	Good	Excel	Down	Static	Up	Current/Long Term	
6157	C	12466	—	2225	10241	—	1534	9024	1908	1884	1884
6158	C	7080	—	2741	4339	—	—	7080	—	1008	1008
6159	C	5773	—	1840	2673	620	—	5133	—	600	600
6160	C	640	—	—	640	—	—	640	—	120	120
6161	M	12832	1572	8654	1964	642	1278	11554	—	1992	1992
6162	C	3429	—	535	1556	1338	—	3429	—	324	324
6164	C	200	—	—	200	—	—	200	—	24	24
6165	C	280	—	280	—	—	—	280	—	36	36
6166	C	280	—	280	—	—	—	280	—	45	45
6167	C	958	—	—	—	—	—	—	—	72	72
6168	I	27230	7939	13222	6015	54	4364	21473	1393	3060	3502*
6169	I	2423	121	363	1866	73	122	2228	73	322	354*
6170	C	3418	25	662	1661	1070	—	3418	—	660	660
6172	C	440	—	—	308	132	—	440	—	60	60
6173	C	509	—	—	—	—	—	—	—	0	0
6174	C	4387	—	—	—	—	—	—	—	0	0
6175	C	1605	—	1175	278	152	—	1605	—	156	156
6176	C	1600	—	1185	415	—	—	1600	—	276	276
6177	C	363	—	363	—	—	—	363	—	18	18
6180	C	4347	—	1348	2782	217	391	3956	—	660	660
6181	C	110	—	110	—	—	—	110	—	24	24
6182	C	40	—	40	—	—	—	40	—	12	12
6183	I	14419	4978	8758	683	—	—	14419	—	1356	1644*
6184	C	4481	—	950	3531	—	—	4481	—	408	408
6185	C	380	—	—	189	69	122	—	380	12	12
6186	C	3766	430	185	3151	—	430	1907	1429	780	780
6187	C	281	—	—	—	—	—	—	—	48	48
6188	C	65	—	65	—	—	—	65	—	12	12
6189	C	3200	—	—	—	—	—	—	—	0	0
6190	C	880	—	—	832	48	—	880	—	168	168
6191	C	693	—	655	38	—	—	693	—	120	120
6194	C	5077	—	3175	1902	—	—	5077	—	0	0
6195	C	18780	—	1764	14219	2797	2193	14811	1776	1932	1932
6196	C	59	—	—	—	—	—	—	—	5	5
6197	M	25553	469	23560	67	1457	60	24624	869	2964	2964
6198	C	2154	—	76	2078	—	—	2154	—	252	252
6200	C	199	167	32	—	—	150	49	—	33	33
6201	C	3185	123	2793	110	159	1149	2036	—	600	600
6202	C	118	—	—	118	—	—	118	—	12	12
6203	C	5552	467	5085	—	—	—	5552	—	375	375
6204	C	758	—	758	—	—	—	758	—	72	72
6205	C	1916	19	1495	402	—	—	1916	—	336	336
6206	C	1035	—	362	466	207	—	1035	—	60	60
6207	C	320	—	—	320	—	—	320	—	48	48
6210	C	80	—	64	12	4	—	80	—	12	12
6212	C	600	—	—	600	—	—	600	—	0	0
6213	C	350	35	280	28	7	35	315	—	66	66
6214	C	2080	—	624	1456	—	—	2080	—	198	198

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APPENDIX 3 (Continued)

Allot. No.	Cat. M,I,C	BLM Acres	BLM Acres/Cond. Class				BLM Acres/ Apparent Trend			BLM AUMs	
			Poor	Fair	Good	Excel	Down	Static	Up	Current/Long Term	
6215	M	27389	—	19585	7073	731	—	26803	586	4104	4104
6216	C	241	—	—	—	—	—	—	—	24	24
6219	C	1325	—	1245	27	53	—	1325	—	96	96
6220	C	631	—	—	—	—	—	—	—	84	84
6222	M	16805	—	12485	4320	—	—	16805	—	1863	1863
6223	M	7860	—	3918	3623	319	1747	6113	—	1032	1032
6224	C	440	—	280	40	120	—	440	—	84	84
6225	C	117	—	53	58	6	29	88	—	24	24
6226	C	255	—	255	—	—	—	255	—	12	12
6227	M	6345	—	2450	3895	—	—	6345	—	1068	1068
6228	C	1040	—	—	—	—	—	—	—	84	84
6229	C	92	—	92	—	—	92	—	—	12	12
6230	C	3080	—	—	3080	—	—	3080	—	491	491
6231	C	360	—	—	360	—	—	360	—	72	72
6232	C	960	—	—	960	—	—	960	—	140	140
6234	C	640	—	640	—	—	—	640	—	120	120
6235	C	1617	—	1617	—	—	—	1617	—	216	216
6238	C	77	—	77	—	—	—	77	—	15	15
6239	I	11062	6970	3650	442	—	10620	—	442	1941	2275*
6241	C	5892	—	766	1474	3652	—	5892	—	1116	1116
6242	C	3062	—	—	3062	—	—	3062	—	408	408
6243	M	6789	—	6251	—	538	—	6789	—	924	924
6244	M	14871	263	12960	1648	—	—	13446	1425	1428	1428
6245	C	1344	—	492	852	—	—	1344	—	101	101
6246	C	960	—	864	96	—	—	960	—	96	96
6252	C	1307	—	—	1307	—	—	1307	—	214	214

¹Includes allotment 6251²Includes allotments 6146, 6152, 6154, 6145 and 6250

Allotments scheduled for AMPs in the Eastern Arizona Range Program Summary (BLM 1987)

Source: Phoenix District files.

APPENDIX 4

ALLOTMENTS SCHEDULED FOR ALLOTMENT MANAGEMENT PLANS (AMPs) AND/OR COOPERATIVE RESOURCE MANAGEMENT PLANS (CRMPs)

Allotment			AMP	CRMP	Projected Imple- mentation	Resource Needs or Emphasis for Plan
Name	Number	Acres				
Agua Blanco Ranch	6183	16,699	X	X	1988-1996	Rangeland/watershed condition; endangered plant habitat
Bumble Bee	6161	52,265		X	1993-2003	Watershed/riparian habitat condition
Cocoraque Butte- Waterman Peak	6020 6126	47,976	X X	X X	1989-1999	Rangeland/watershed condition; endangered plant habitat
Cordes Junction	6005	14,609		X	1993-1998	Watershed/riparian habitat condition
11-L Ranch	6103	18,171	X		Begun	Rangeland condition
Grayback Mtn.- Box O Wash	6168 6032	71,346	X X	X X	1991-2006	Rangeland/watershed/riparian habitat condition
Sycamore Creek	6169	3,819	X	X	1989-1994	Rangeland/riparian habitat condition; pronghorn habitat
U-Cross Ranch	6239	11,062	X		Begun	Rangeland condition
Williams Mesa	6215	59,735		X	1995-2010	Watershed/riparian habitat condition; endangered fish/burro management

Source: Eastern Arizona Grazing EIS—Range Program Summary and Phoenix District files.

APPENDIX 5

WILDERNESS SUITABILITY RECOMMENDATIONS — PHOENIX WILDERNESS EIS

Number	Wilderness Study Area Name	Proposed Action	
		Suitable Acres	Nonsuitable Acres
2-01A	Mount Wilson	24,821	0
2-119	Hells Canyon	0	9,379
2-187	White Canyon	0	6,968
2-194	Picacho Mountains	0	6,400
2-202	Coyote Mountains	5,080	0
2-203B	Baboquivari Peak*	2,065	0
	TOTAL	31,966	22,747

*Area being studied for wilderness under the authority of Section 202 of FLPMA.

Source: Phoenix District files.

APPENDIX 6

CULTURAL RESOURCES MANAGEMENT GUIDELINES

MANAGE FOR INFORMATION POTENTIAL

Cultural resources included under this objective are capable of contributing useful scientific and management information. Their information potential will be protected to the extent needed until this potential has been realized through appropriate study.

Cultural resources which would be managed for their information potential possess one or both of the following characteristics:

1. They are suitable subjects for scientific study using currently available research techniques, including study that would result in their physical alteration.
2. They are most useful for controlled experimental studies which would aid in the management of other cultural properties; studies, for example, aided toward better understanding natural or human-caused deterioration, effectiveness of protection measures and similar objectives.

Habitation, agricultural, resource utilization and sociocultural site types (see page 177 for detailed list) are known recorded properties in the RMP area. Other cultural properties within these classes which are found will be managed for their information potential because they contain readily retrievable information that is important to the understanding of Arizona history and prehistory.

Cultural resources to be managed for their information potential may be studied as subjects of pure research or as subjects of data recovery designed to mitigate impacts from competing land uses. Such studies must be in accordance with BLM-approved research designs, data recovery plans and recordation standards. Techniques employed will include excavation, collection, photography, mapping and other forms of data gathering. Bureau and non-bureau personnel using cultural resources for this purpose must comply with the provisions of the *Archaeological Resources Protection Act* of 1979. Uses which will affect *National Register*-listed or -eligible cultural resources will require consultation with the State Historic Preservation Officer and the Advisory Council on Historic Preservation in accordance with 36 CFR 800 and applicable Memoranda of Agreement.

The information potential of cultural resources managed under this objective will be protected through regular monitoring of selected high-value

sites and occasional monitoring of others. Stabilization, fencing, signing, installation of electronic surveillance devices, aerial and ground surveillance and public awareness efforts will be employed as tools to achieve this objective.

MANAGE FOR CONSERVATION

Cultural resources included under this objective have overriding scientific prehistoric and/or historic importance. Because of scarcity, a research potential that surpasses the current state of the art, singular historic or architectural interest or comparable reasons, such resources are not considered appropriate subjects of studies which would result in their physical alteration. They will be managed to maintain their present condition and protect them from potentially conflicting land or resource uses.

The recorded Puebloan archaeological site on Perry Mesa, known as Rattlesnake Pueblo, is of value for its unique potential to answer questions relating to aboriginal-European contact and will be managed under this objective. All similar, relatively undisturbed structural sites which may be discovered or acquired on Perry Mesa will also be managed for conservation, because sites from this period of transition are rare and are of particular value when studied as integral parts of a larger complex of sites.



APPENDIX 6 (Continued)

The large Hohokam village site in Avra Valley, known as Casa de Cohn, will also be managed under the conservation objective. Because the site is relatively undisturbed, is of considerable depth and contains a large number and variety of features, it has the potential to play a key role in advancing our knowledge of Hohokam culture in southern Arizona.

Cultural resources managed under this objective will be treated as data banks to be preserved for future study when analytical techniques are more sophisticated and the research contributions of these resources can be maximized. Management emphasis will be placed on protecting these resources with their cultural material in place. Only non-destructive studies and analyses will be permitted. Interpretative efforts such as trails, signs and brochures may be considered but will be a low priority.

The management objective for these cultural resources may be changed from conservation to information potential upon determining that their research values can be realized through state of the art methods of data collection and analysis. Any destructive studies of these resources must be in accordance with a research design approved by the BLM.

Cultural resources of this class may be managed under the public values objective if their information potential has been achieved to the point where educational, recreational and other public values would not result in the loss of important scientific values.

Measures to conserve these cultural resources for the future will include regular monitoring by BLM personnel and volunteers. These resources will be selected for frequent monitoring and will be identified as high priority areas for ground and aerial surveillance. The installation of electronic surveillance devices will be considered. Stabilization efforts, such as erosion control, will be implemented as needed. The area containing the Perry Mesa archaeological sites will be selected for a pilot study using the BLM's Geographic Information System (GIS) to automate and map resource data. The GIS will enhance the BLM's ability to conserve this resource for the future.

MANAGE FOR PUBLIC VALUES

Cultural resources included under this objective are particularly useful for their sociocultural, educational, recreational or other public values. Their locations will be managed in a manner that gives adequate consideration to these values.



Cultural resources which would generally be managed for public values possess one or both of the following characteristics:

1. They are perceived by a social and/or cultural group as having attributes which contribute to maintaining the heritage or existence of that group. Locations of traditional cultural or religious importance to Native Americans, for example, would be of this kind.
2. They are appropriate for interpretive development as exhibits-in-place, for supervised participation in scientific or historic studies or for related educational and recreational uses by members of the general public. Cultural resources of this kind which have been identified in the RMP area are Plaza Nueva, Santa Ana del Chiquiburitac and Reymert Townsite.

Accessibility, public demand, public sensitivity, cost-effectiveness and feasibility will be considered, among other factors, in managing cultural properties of this kind for educational or recreational use. Such management might include signs, self-guided interpretive trails, brochures, supervised archaeological excavation, supervised mapping or other forms of recordation, stabilization, visitor facilities and occasional on-site public presentations.

APPENDIX 6 (Continued)

Cultural resources possessing values considered sensitive by contemporary social and/or cultural groups, such as places associated with Native American religious practices, would take into account the concerns and sensibilities of the groups involved. Information on such resources would be protected from public disclosure to the extent allowed by statute.

Management of cultural resources for public values will also be carried out with an awareness of any information potential such resources might possess. Any development of a cultural property for educational or recreational use will be done in such a manner as to safeguard important scientific information, either by protection in place or through professionally adequate data recovery.

ACTIVITY PLANS

Cultural resources in the RMP area will be allocated to specific uses in subsequent Cultural Resource Management Plans. Activity plans containing detailed management prescriptions for selected cultural resources will be developed after use allocations have been made. Cultural properties to be managed for conservation will receive the highest priority for activity planning. Areas for which activity plans will be prepared are, in priority order: Perry Mesa, Avra Valley, Reymert Townsite, Middle Gila and Santa Ana del Chiquiburitac.

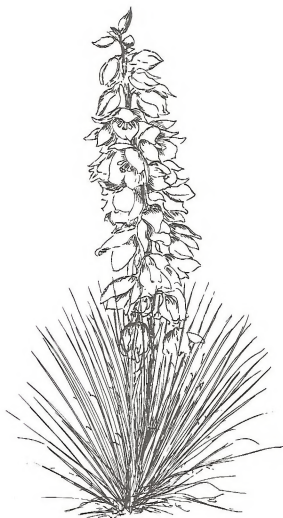
Classes of Cultural Properties in the RMP Area

1. Habitation (includes, not limited to):

- Prehistoric Villages/Towns
- Rock Shelters
- Historic Villages/Towns
- Pueblos
- Camps
- Pithouses
- Cabins

2. Agriculture (includes, not limited to):

- Prehistoric Terraces
- Water Control Devices
- Historic Terraces
- Ranching Facilities



3. Resource Utilization (includes, not limited to):

- Prehistoric Artifact Scatters
- Mines
- Historic Artifact Scatters
- Roasting Pits
- Trash Middens
- Hearths
- Quarries
- Ovens

4. Sociocultural (includes, not limited to):

- Rock Art
- Community Rooms
- Religious
- Mortuary
- Ballcourts
- Roads
- Kivas

APPENDIX 7

DISPOSITION OF RIPARIAN HABITAT BY ALTERNATIVE

Name Location	Public Land Habitat Miles (Acres)	Alternative A			*Alternative B			Alternative C			Alternative D		
		R	D	A	R	D	A	R	D	A	R	D	A
Chevelon Creek T. 16 N., R. 16 E.	1.0	1.0	0	0	0	1.0	0	0	1.0	0	0	1.0	0
Clear Creek T. 17 N., R. 15 E.	0.5	0.5	0	0	0	0.5	0	0	0.5	0	0	0.5	0
Silver Creek T. 16 N., R. 22 E.	1.7	1.7	0	0	0	1.7	0	0	1.7	0	0	1.7	0
Little Colorado River Apache-Navajo counties	6.7	6.7	0	0	0	6.7	0	0	6.7	0	0	6.7	0
Agua Fria River T. 8 to 13 N., R. 1 to 3 E.	7.4	7.4	0	0	2.9	4.5	17.5	2.9	4.5	17.5	0	7.4	0
Arrastre Creek (Bumble Bee Cr. Tributary) T. 9 N., R. 2 E.	3.1	3.1	0	0	3.1	0	0	3.1	0	0	0	3.1	0
Bumble Bee Creek T. 9 to 11 N., R. 2 E.	7.7	7.7	0	0	7.7	0	4.2	7.7	0	4.2	0	7.7	0
Hassayampa River T. 9 to 10 N., R. 3 W.	13.1	13.1	0	0	11.9	1.2	3.7	11.9	1.2	3.7	0	13.1	0
Indian Wash T. 11 N., R. 3 E.	0.5	0.5	0	0	0.5	0	2.2	0.5	0	2.2	0	0.5	0
Larry Creek T. 9 N., R. 3 E.	0.4	0.4	0	0	0.4	0	0	0.4	0	0	0	0.4	0
Castle Creek (Bumble Bee Cr. Tributary) T. 9½ N., R. 2 E.	0.9	0.9	0	0	0.4	0.5	0	0.4	0.5	0	0	0.9	0
Sycamore Creek T. 11 N., R. 3 E.	0.8	0.8	0	0	0.8	0	2.2	0.8	0	2.2	0	0.8	0
Cottonwood Gulch T. 8 N., R. 2 E.	0.2	0.2	0	0	0.2	0	0	0.2	0	0	0	0.2	0
Antelope Creek T. 11 N., R. 2 E.	2.7	2.7	0	0	2.7	0	0	2.7	0	0	0	2.7	0
Chalky Creek T. 6 N., R. 1 W.	0.4	0.4	0	0	0	0.4	0	0	0.4	0	0	0.4	0
Gila River T. 4 S., R. 11 to 13 E.	15.0	15.0	0	0	15.0	0	2.5	15.0	0	2.5	0	15.0	0
Walnut Canyon T. 3 S., R. 12 E.	1.2	1.2	0	0	1.2	0	1.0	1.2	0	1.0	0	1.2	0
White Canyon T. 3 S., R. 12 E.	3.1	3.1	0	0	3.1	0	0.3	3.1	0	0.3	0	3.1	0
Tule Creek T. 8 N., R. 1 E.	1.0	1.0	0	0	1.0	0	1.6	1.0	0	1.6	0	1.0	0
Martinez Canyon T. 3 S., R. 12 E.	0.9	0.9	0	0	0.9	0	0	0.9	0	0	0	0.9	0
Galena Gulch T. 13 N., R. 1 E.	0.2	0.2	0	0	0	0.2	0	0	0.2	0	0	0.2	0
Boulder Creek T. 8 to 9 N., R. 1 E.	4.2	4.2	0	0	4.2	0	3.2	4.2	0	3.2	0	4.2	0
Humbug Creek (Agua Fria R. Tributary) T. 8-9 N., R. 1 E.	8.0	8.0	0	0	8.0	0	3.7	8.0	0	3.7	0	8.0	0
Castle Creek (Agua Fria R. Tributary) T. 7-8 N., R. 1-2 W.	3.1	3.1	0	0	3.1	0	1.5	3.1	0	1.5	0	3.1	0
Oak Creek T. 9 N., R. 2 to 3 W.	3.5	3.5	0	0	3.5	0	1.5	3.5	0	1.5	0	3.5	0
Cherry Creek T. 10 N., R. 3 W.	0.2	0.2	0	0	0	0.2	0	0	0.2	0	0	0.2	0
Minnehaha Creek T. 10 N., R. 3 W.	0.5	0.5	0	0	0	0.5	0	0	0.5	0	0	0.5	0
Spring Creek T. 10 N., R. 3 W.	0.8	0.8	0	0	0	0.8	0	0	0.8	0	0	0.8	0
Arrastre Creek (Hassayampa R. Tributary) T. 11 N., R. 3 W.	0.7	0.7	0	0	0	0.7	0	0	0.7	0	0	0.7	0

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APPENDIX 7 (Continued)

Name Location	Public Land Habitat Miles (Acres)	Alternative A			*Alternative B			Alternative C			Alternative D		
		R	D	A	R	D	A	R	D	A	R	D	A
Cottonwood Creek (Tributary to Boulder Cr.) T. 8 N., R. 1 E.	0.6	0.6	0	0	0.6	0	0	0.6	0	0	0	0.6	0
Cottonwood Creek (Hassayampa R. Tributary) T. 10 N., R. 3 W.	1.6	1.6	0	0	0	1.6	0	0	1.6	0	0	1.6	0
Cocio Wash T. 12 S., R. 9 W.	0.3	0.3	0	0	0.3	0	0	0.3	0	0	0	0.3	0
Government Spring Wash T. 10 N., R. 2 E.	0.4	0.4	0	0	0.4	0	0	0.4	0	0	0	0.4	0
Slate Creek T. 8 N., R. 2 E.	0.4	0.4	0	0	0.4	0	0	0.4	0	0	0	0.4	0
Rock Creek T. 8 N., R. 2 W.	0.2	0.2	0	0	0.2	0	0	0.2	0	0	0	0.2	0
Banty Creek T. 8 N., R. 2 W.	1.0	1.0	0	0	1.0	0	1.2	1.0	0	1.2	0	1.0	0
Zion Reservoir T. 14 N., R. 27 E.	(280)	(280)	0	0	0 ** (280)	0	0	(280)	0	0	(280)	0	0
Gila River — West T. 1 N., R. 1 W.	(440)	(440)	0	0	(440)	0	0	(440)	0	0	0	(440)	0
Picacho Reservoir T. 6 S., R. 8 E.	(350)	(350)	0	0	0 ** (350)	0	0	(350)	0	0	(350)	0	0
Ash Creek T. 9 to 10 N., R. 3 E.	0	N/A	N/A	0	N/A	N/A	2.6	N/A	N/A	2.6	N/A	N/A	0
Little Ash Creek T. 11 N., R. 3 E.	0	N/A	N/A	0	N/A	N/A	0.7	N/A	N/A	0.7	N/A	N/A	0
Silver Creek T. 10 N., R. 3 E.	0	N/A	N/A	0	N/A	N/A	1.9	N/A	N/A	1.9	N/A	N/A	0
Lousy Creek T. 9 to 9½ N., R. 3 E.	0	N/A	N/A	0	N/A	N/A	1.0	N/A	N/A	1.0	N/A	N/A	0
Bishop Creek T. 10 N., R. 3 E.	0	N/A	N/A	0	N/A	N/A	1.4	N/A	N/A	1.4	N/A	N/A	0

Source: Phoenix District files.

* R = Retention
D = Disposal
A = Acquisition

** R&PPA = Disposal under Recreation and Public Purposes Act

APPENDIX 8

WILDLIFE AND GAME SPECIES CONSIDERED FOR ANALYSIS

Common Name (Scientific Name)	Status ¹	Presence on Public Land ²
Federally Listed and Proposed Species		
Black-footed ferret (<i>Mustela nigripes</i>)	E (S-I)	NV, H
Bald eagle (<i>Haliaeetus leucocephalus</i>)	E (S-II)	V
Peregrine falcon (<i>Falco peregrinus anatum</i>)	E (S-III)	V-(migrant)
Yuma clapper rail (<i>Rallus longirostris yumanensis</i>)	E (S-III)	V
Masked bobwhite (<i>Colinus virginianus ridgwayi</i>)	E (S-II)	A
Gila topminnow (<i>Poeciliopsis occidentalis occidentalis</i>)*	E (S-III)	V
Desert pupfish (<i>Cyprinodon macularius</i>)*	E (S-I)	V
Little Colorado River spinedace (<i>Lepidomeda vittata</i>)	P (S-III)	NV
Woundfin (<i>Plagopterus argentissimus</i>)	E (S-III)	A
Federal Candidate Species		
Underwood mastiff bat (<i>Eumops underwoodi sonoriensis</i>)	C-2	NV
Spotted bat (<i>Euderma maculatum</i>)	C-2	NV
Greater mastiff bat (<i>Eumops perotis californicus</i>)	C-2	NV
Little long-nosed bat (<i>Leptonycteris sanborni</i>)	C-2	NV
Silky pocket mouse (<i>Perognathus flavus goodpasteri</i>)	C-2	NV
Ferruginous hawk (<i>Buteo regalis</i>)	C-2	V
Swainson's hawk (<i>Buteo swainsoni</i>)	C-2	V
Long-billed curlew (<i>Numenius americanus</i>)	C-2	NV
Desert tortoise (<i>Gopherus agassizi</i>)*	C-2 (S-III)	V
Gila monster (<i>Heloderma suspectum</i>)	C-2	V
Gilbert's skink (<i>Eumeces gilberti</i>)	C-2 (S-IV)	V
Gila chub (<i>Gila intermedia</i>)	C-1 (S-IV)	NV
Arizona giant sand-treader cricket (<i>Daihinibaentes arizonensis</i>)	C-2	NV
State-Listed Species		
Desert bighorn sheep (<i>Ovis canadensis mexicana</i>)*	S-III	V
Common black hawk (<i>Buteogallus anthracinus anthracinus</i>)	S-III	V
Mississippi kite (<i>Ictinia mississippiensis</i>)	S-III	NV
Osprey (<i>Pandion haliaetus carolinensis</i>)	S-III	V
Snowy egret (<i>Egretta tinula brewsteri</i>)	S-IV	V
Great egret (<i>Casmerodius albus egretta</i>)	S-IV	V
Black-crowned night heron (<i>Nycticorax nycticorax</i>)	S-IV	V
Mountain skink (<i>Eumeces calicephalus</i>)	S-IV	NV
Colorado River roundtail chub (<i>Gila robusta robusta</i>)	S-III	NV
Game Species		
Pronghorn (<i>Antilocapra americana</i>)*		V
Mule deer (<i>Odocoileus hemionus</i>)*		V
Javelina (<i>Dicotyles tajacu</i>)*		V
White-tailed deer (<i>Odocoileus virginianus</i>)		V
Mourning dove (<i>Zenaidura macroura</i>)		V
White-winged dove (<i>Zenaidura asiatica</i>)		V
Gambel's quail (<i>Lophortyx gambelli</i>)		V
Scaled quail (<i>Callipepla squamata</i>)		V
Montezuma quail (<i>Cratonyx montezumae</i>)		V

¹Federal Listing:

E — Endangered species: any species or animal which is in danger of extinction throughout all or a significant portion of its range.

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APPENDIX 8 (Continued)

P — Proposed species: See ¹ above.

C-1 — Species for which the Fish and Wildlife Service has sufficient information to support the listing of the species.

C-2 — Species for which the Fish and Wildlife Service does not have sufficient information to support the listing of the species.

State Listing:

S-I — Animals known or suspected to have been extirpated (eliminated) from Arizona but which still exist elsewhere.

S-II — Animals whose continued presence in Arizona is now in jeopardy and extirpation from the state is highly probable if no recovery efforts are made.

S-III — Animals whose continued presence in Arizona could be in jeopardy in the foreseeable future.

S-IV — Animals for which there is a moderate threat to the habitat they occupy.

²Presence of species on public land:

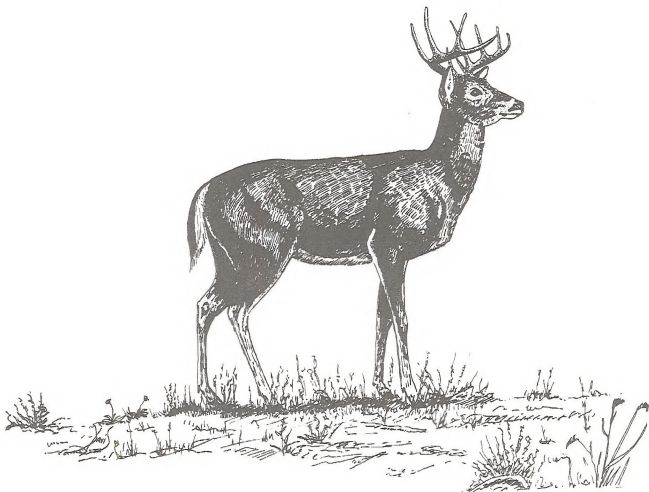
NV — Not verified.

V — Verified.

H — Historic habitat.

A — Absent.

*Species analyzed in RMP/EIS.



APPENDIX 9

FEDERALLY LISTED AND CANDIDATE PLANT SPECIES CONSIDERED FOR ANALYSIS

Scientific Name	Common Name	Occurrence on Public Land	Status*
<i>Agave parviflora</i>	Santa Cruz striped agave	confirmed	C(2)
<i>Amsonia keeneyana</i>	Kearney's amsonia	unconfirmed	C(1)
<i>Amsonia peeblesii</i>	Peebles blue star	confirmed	C(2)
<i>Astragalus xiphoides**</i>	sword milkvetch	confirmed	C(1)
<i>Cheilanthes pringlei</i>	Pringle's lip fern	confirmed	C(2)
<i>Coryphantha scheeri</i> var. <i>robustispina</i>	stout needle mulee	confirmed	C(1)
<i>Cynanchum wigginsii</i>	Wiggins milkweed vine	confirmed	C(2)
<i>Dalea tentaculoides</i>	Gentry's indigo bush	unconfirmed	C(1)
<i>Echinocactus horizonthalonius</i> var. <i>nicholii**</i>	Nichol Turk's head cactus	confirmed	E
<i>Graptopetalum bartramii</i>	Bartram's stonecrop	confirmed	C(2)
<i>Mammillaria thornberi**</i>	Thornber fishhook cactus	confirmed	C(2)
<i>Neolloydia erectocentra</i> var. <i>acunensis</i>	Acuna Valley pineapple cactus	unconfirmed	C(1)
<i>Notholaena lemmonii</i>	Lemmon's lipfern	unconfirmed	C(2)
<i>Pediocactus pappyracanthus**</i>	paperspined cactus	confirmed	C(2)
<i>Pediocactus peeblesianus</i> var. <i>peeblesianus**</i>	Peebles Navajo cactus	confirmed	E
<i>Peniocereus greggii</i>	desert night-blooming cereus	confirmed	C(2)
<i>Phacelia cephalotes</i>	badlands phacelia	confirmed	C(2)
<i>Tumamoca macdougalii**</i>	Tumamoc globeberry	confirmed	E

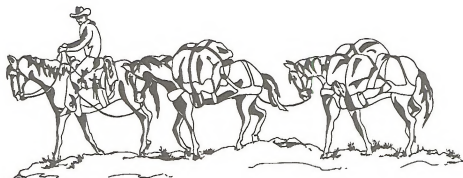
*C(1) Category 1 candidate species plants for which the FWS presently has sufficient information on hand to support their being listed as threatened or endangered.

C(2) Category 2 candidate species plants for which the FWS has information indicating the probable appropriateness for listing but for which sufficient information to support a proposed rule is lacking.

E Endangered species.

** Species analyzed in the RMP/EIS.

Source: Phoenix District files.



APPENDIX 10

PLANTS ON THE ARIZONA NATURAL HERITAGE PROGRAM LIST CONSIDERED FOR ANALYSIS

Scientific Name	Common Name	Occurrence on Public Land in RMP Area
<i>Abutilon revertum</i>	Yellow Indian mallow	unconfirmed
<i>Abutilon thurberi</i>	Thurber Indian mallow	unconfirmed
<i>Agastache rupestris</i>	Baboquivari giant hyssop	confirmed
<i>Agave murpheyi</i>	Murphey agave	confirmed
<i>Allium plummerae</i>	Plummer onion	unconfirmed
<i>Anoda abutiloides</i>	anoda	confirmed
<i>Astragalus barnebyi</i>	Barneby milkvetch	confirmed
<i>Bacopa rotundifolia</i>	disk water hyssop	unconfirmed
<i>Cardiospermum corindum</i>	balloon vine	unconfirmed
<i>Ceterach dalhousiae</i>	Dalhousie spleenwort	confirmed
<i>Cynanchum sinaloense</i>	Sinaloa milkweed vine	unconfirmed
<i>Errazurizia rotundata</i>	roundleaf errazurizia	unconfirmed
<i>Hexalectris spicata</i>	crested coral root	unconfirmed
<i>Lagascea decipiens</i>	beguiling Mexican daisy	confirmed
<i>Malvastrum bicuspidatum</i>	Mexican shrub mallow	unconfirmed
<i>Mammillaria viridiflora</i>	greenflower fishhook cactus	confirmed
<i>Mammillaria wrightii</i> var. <i>wrightii</i>	Wright fishhook cactus	unconfirmed
<i>Manihot davisiae</i>	Arizona manihot	confirmed
<i>Matelea arizonica</i>	Rincon milkweed vine	confirmed
<i>Maurandya acerifolia</i>	mapleleaf false snapdragon	unconfirmed
<i>Muhlenbergia dubioides</i>	Box Canyon muhly	unconfirmed
<i>Muhlenbergia xerophila</i>	Sycamore Canyon muhly	unconfirmed
<i>Roldana hartwegii</i>	Seeman groundsel	unconfirmed
<i>Zuckia arizonica</i>	Navajo zuckia	unconfirmed

Source: Phoenix District files.

APPENDIX 11

WATERSHED MANAGEMENT CATEGORIES BY ALLOTMENT

ALLOTMENT			ALLOTMENT		
Name	Number	Watershed Category	Name	Number	Watershed Category
11 L Ranch	6103	I	Cerro Colorado	6023	I
Agua Blanco Ranch	6183	IV	Cerro Hueco	6140	I
Aguirre Pass	6040	I	Chaparral Gulch	6065	I
Aguirre Valley	6167	III	Chevelon Creek South	6202	I
Alamo Wash	6009	I	Chevelon Creek North	6114	I
Antelope	6124	I	China Wash	6132	III
Antelope Creek	6238	I	Cinder Pit	6196	I
Apache Butte	6073	I	Cochran	6113	I
Apache Wash	6090	I	Cocio Wash	6203	I
Arivaca Ranch	6003	I	Corcoraque Butte	6020	IV
Arkansas Gulch	6097	I	Cordes Junction	6005	IV
Arroyo Seco	6186	I	Cottonwood	6078	IV
Ash Mountain	6015	I	Cottonwood Creek	6246	I
Avra Valley	6055	I	Cottonwood Wash	6079	II
Baboquivari Mountain	6089	I	Cow Canyon	6234	I
Badger Spring Wash	6182	I	Coyote Mountain	6093	I
Beardsley Canal	6185	I	Crazy Creek Cell	6205	II
Banty Creek	6026	IV	Crown Point	6223	IV
Big Bug Creek	6143	I	Demetric Wash	6115	I
Big Hollow Wash	6070	II	Dewey	6094	I
Big Rebel Mine	6066	I	Digger Wash	6092	II
Black Canyon City	6122	I	Dobbs Butte	6059	IV
Black Hills	6119	I	Dry Creek	6148	II
Black Mesa	6106	I	Dry Lake	6037	I
Black Ridge	6164	II	Dry Lakes Cell	6145	II
Blanco Wash	6010	IV	Durham Wash	6144	I
Bloody Basin	6235	IV	El Tule	6112	I
Bluebell	6012	I	Flint Knoll	6228	I
Bony Mine	6095	II	Florence Junction	6053	I
Box O Wash	6032	I	Flying Butte	6074	II
Brady Wash	6039	I	Fourmile Cell	6154	I
Brawley Wash	6199	I	Fresnal Canyon	6022	I
Buckeye Mountain	6050	I	Galena Gulch	6201	I
Buckhorn Cell	6146	I	Gillette	6219	I
Buckhorn Creek	6150	I	Gold Basin	6220	I
Buckhorn Mountains	6243	I	Gravel Pit	6098	I
Bumblebee	6161	II	Grayback Mountain	6168	IV
Buzzards Roost	6080	I	Green Gulch	6229	I
Cactus Basin	6063	I	Groovers Hill	6002	I
Cactus Forest	6162	III	Guild Wash	6151	II
Carrizo Wash	6155	II	Gunnery	6133	IV
Carrizo Wash East	6160	I	Gunsight Mountain	6191	I
Castle Hot Springs	6206	I	Hackberry Gulch	6057	I
Cat Hills	6244	IV	Hackberry Mine	6046	I
Cave Creek	6216	I	Hackberry Wash	6125	IV
Cedar Lake Wash	6156	II	Hardscrabble Wash	6110	II

(Continued on next page)

APPENDIX 11 (Continued)

ALLOTMENT			ALLOTMENT		
Name	Number	Watershed Category	Name	Number	Watershed Category
Hassayampa River	6035	IV	North Star	6248	II
Hewitt Road	6187	I	North Star Mine	6006	II
Hidden Lake	6184	I	Old Sasco	6102	II
Holbrook	6225	I	Olsen Wash	6062	I
Horse Hills	6118	I	Ortega Sink	6136	II
Humboldt	6181	I	Osborne Spring Wash	6213	I
Humbug	6245	I	Palo Verde Mountains	6174	II
Hunt Valley	6088	II	Parker Wash	6083	I
Indian Camp	6042	IV	Phoenix Park Wash	6214	II
Jesus Canyon	6227	IV	Picture Rock Road	6054	I
Joseph City South	6210	II	Picture Rocks	6175	III
Kearny	6060	I	Pink Cliffs	6058	I
King Solomon Gulch	6222	IV	Pipeline	6149	I
Little Colorado River	6232	II	Poland Junction	6135	I
Lake Pleasant	6044	I	Potato Wash	6087	IV
Leroux Wash	6091	II	Puerco Ridge	6176	II
Lithodendron Wash	6241	II	Puerco River	6051	II
Little Electric	6158	II	Queen Valley	6173	I
Little Ortegalk	6029	I	Ramsey Slide	6250	II
Little Reservoir	6159	I	Red Hill	6153	IV
Lost Gulch	6014	I	Relic Point	6024	I
Lost Tank Canyon	6064	I	Rescue Canyon	6082	I
Lyman Lake South	6231	II	Richville	6141	II
Lynx Creek	6188	I	Ripsey	6067	I
Maggie Mine	6013	IV	Ritchey Peak	6198	I
Malpais Hill	6072	III	Ruelas Canyon	6025	I
Manila Wash	6017	II	Sacaton	6116	II
Mammoth Wash	6075	I	Sacaton Mountains	6194	II
Marcou Mesa	6127	II	Saint Johns	6033	II
Martinez Wash	6018	I	Salado	6224	I
Mayer	6011	I	San Luis Mountain	6085	I
Mesa Parada	6061	I	Saugito Mountain	6100	IV
Mesa Wash	6172	II	Sawtooth Mountain	6068	III
Mexican Wash	6180	II	Scraper Knoll	6069	II
Milky Wash	6049	II	Sheepskin Wash	6084	II
Mineral Mountain	6197	IV	Silver Creek	6242	I
Minnehaha Creek	6021	I	Silver Bell Peak	6029	I
Monument Hill Cell	6047	I	Sleeping Beauty Mtn.	6099	I
Mud Springs	6252	I	Smelter Canyon	6226	I
Navajo	6192	II	Snow Flake	6107	I
New River	6109	I	Solomon Lake	6036	I
Newman Peak	6004	III	Squaw Creek	6128	I
Ninemile Cell	6152	I	St. Johns Wash	6157	II
North Butte	6111	III	Steamboat Mountain	6251	I
North Cerro Hueco	6134	I	Straddling Lake	6076	I

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APPENDIX 11 (Continued)

ALLOTMENT			ALLOTMENT		
Name	Number	Watershed Category	Name	Number	Watershed Category
Suffering Wash	6123	I	V X Ranch	6104	IV
Surprise Valley	6195	II	Valencia Mountain	6204	I
Sycamore Creek	6169	I	Volcanic Ridge	6207	II
Sycamore Mesa	6045	I	Wagoner	6147	I
Texas Gulch	6048	I	Walker Butte	6041	I
The Divide	6052	I	Walkers Gulch	6152	I
Thomas Canyon	6031	I	Washboard Wash	6007	I
Three Peaks	6137	I	Waterman Peak	6126	I
Three Points	6200	IV	West Wing Mountain	6056	I
Tiger Mountain	6016	I	White Mountain Lake	6034	I
Toltec Divide	6038	I	Wildcat Creek	6071	II
Tortilla Mountain	6120	I	Williams Mesa	6215	IV
Tortilla Mountains	6121	I	Wiregrass Lake	6230	II
Tucker Flat	6019	I	Woodruff Butte	6086	I
Twin Butte East	6165	II	Yarber Wash	6027	I
Twin Butte West	6166	I	Yuma Mine	6105	I
Twin Buttes	6001	I	Zion	6096	I
Twin Peaks	6212	I	Zuni Wash	6190	I
Twin Wells	6108	II	Zuni River	6170	II
U Cross	6239	IV			

Source: Phoenix District files.

APPENDIX 12

RESOURCE MONITORING AND EVALUATION PLAN — ALTERNATIVE B

Element	Item	Location	Techniques	Unit of Measure	Frequency and Duration	Information Warranting Decision Change
Minerals	Material sales	Black Canyon Community pit	Standardized appraisal methods/ standards; bonding where appropriate; development of production recordation system; field checks/ input from other resource specialists/ public to identify problems	Acres of disturbance; units of volume or weight	Annually	Unauthorized disturbance outside bounds of permit area
	Mineral exploration and development	WSAs and ACECs	Site inspection; remote sensing to detect unauthorized activity; monitor active/ inactive sites; develop data base systems and require MPOs	Acres of disturbance	Monthly site inspection	Violation of 3809 and 3802 regulations; recognition of undue and unnecessary disturbances and adverse impacts to other critical resources and values protected under ACEC or in WSAs
Cultural Resources	Site vandalism (including ORV damage)	Perry Mesa ACEC, Santa Ana del Chiquiburitac Reymert, Middle Gila, Avra Valley	Site inspection (air and ground); photo documentation	Number of sites disturbed/ major disturbances on given site	Minimum once/year (more if warranted)	Trends indicating increased disturbance (e.g., ground disturbance, structural damage)
	Degradation from natural processes	Same	Site inspection (ground); photo documentation of sensitive portions of selected properties	Number of deteriorating features	Minimum once/year (more if conditions warrant)	Same
Watershed	Soil loss	9 allotments in 7 SMAs	Paired ¹ runoff plots	Tons/ac./yr.	Biannual; Apr./Oct.	Soil loss is not reduced in treated areas
		Same	USLE ² transect	Same	Same	Same
Water	Quality	Gila R. Riparian Area; Grayback Mt., Cordes Jct., Sycamore Cr., Bumble Bee, Williams Mesa SMAs	Field and/or laboratory analysis	Constituent (pH, parts/million, etc.) compared to quality standards	Initial, then annual analysis to determine compliance with AZ standards; then biennially	Continued decline in water quality
	Quantity	Same	Stream gauging	Flow (cfs.)	Concurrent with water quality sampling	Change in flow regime to ephemeral
Rangeland Vegetation	Condition	9 allotments in 7 SMAs	As outlined in SCS National Range Handbook, Sec. 305 ³	Percent production to climax allowance	First and fifth yr.; then each 5 years	Condition is reduced one class
	Trend	Same	Pace frequency ⁴	Change in percentage frequency	End of each grazing cycle	Decrease of 20% in frequency of key plant species
	Utilization	Same	Key forage plant (shrubs); grazed class (grasses and forbs) ⁵	Percent of forage removed	End of each use period	Utilization of more than 50% native grasses

(Continued on next page)

APPENDIX 12 (Continued)

Element	Item	Location	Techniques	Unit of Measure	Frequency and Duration	Information Warranting Decision Change
Special Status Plants	Population stability	Waterman Peak ACEC, Tanner Wash ACEC and areawide	Field survey	Occurrence, number of counts, density, age/class, distribution	Annual/biannual depending on species	Five-year downward trend in population numbers, age/class disparity, shrinking distribution, range contraction
	Habitat evaluation and protection	Same	Site inspection of habitat	Acres/miles of surface disturbance; number of plants destroyed	Annually	Evidence of unauthorized activity which degrades habitat quality, diminishes habitat range, or destroys plants; drastic reductions of habitat and/or plants
	Implement activity plans	Same	Same	Protection measures identified	Annually	Not complete within 3 years of implementation
Burros	Population	Herd area	Helicopter mark re-count	Count	Each 3 years	20% change in population; less than 10% juveniles
	Range condition	Same	(See Rangeland Vegetation ³)	(See Rangeland Vegetation)	Same	Condition is reduced
	Sex ratio	Same	Ground observation	Count	Yearlong	20% change from norm
	Water	Same	Same	N/A	Biweekly	Evidence of water shortage
	Forage utilization	Same	Key forage plant method ³	Percent removed	Annually; grazing cycles end	More than 50% grass usage
	Protection	Same	Road patrol	N/A	Biweekly	Signs of harassment
Gila Topminnow/Desert Pupfish	Observation of breeding populations	Mesquite Spring, Tule Creek, Introduction sites	Direct observation	Number of sites	Annually	Observable decrease in fish populations
	Water quality	Same	Measure heavy metal content of water	Parts/million	Same	Increase of heavy metal content of water
Desert Bighorn Sheep	Population estimate	Silver Bell Mountains SMA	AG&FD population survey information	Numbers	Same	Significant population decreases
Desert Tortoise	Relative densities	Line transects		Individuals/sq. mi.	Five-year intervals	Significant population decreases
	Habitat condition	Crucial habitats	Pace frequency ⁴	Percent cover and composition	Two-year intervals	Significant decrease of habitat capability
Pronghorn	Population estimate	Sycamore Mesa SMA	AG&FD population survey information	Numbers	Annually	Significant population decrease
	Habitat condition	Same	Utilize range data on condition, trend and utilization	(See Rangeland Vegetation)	(See Rangeland Vegetation)	Significant decrease of habitat capability
Mule Deer	Population estimate	Medium to high density habitat	AG&FD population survey information	Numbers	Annually	Significant population decrease
Javelina	Population estimate	Medium to high density	AG&FD population survey information	Numbers	Annually	Significant population decrease

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APPENDIX 12 (Continued)

Element	Item	Location	Techniques	Unit of Measure	Frequency and Duration	Information Warranting Decision Change
Riparian Areas	Condition	14 drainages in 8 SMAs	PDO riparian area condition evaluation (guidelines/minimum procedures to be finalized Sept. 1987)	Miles	Five-year intervals	Decrease of one condition class
Recreation	ERMAs	Areawide; emphasize dispersed use of undeveloped recreational sites	Patrol, area inspection for vandalism, resource abuse, etc.	Visitor days	Biennially	Collected data reveals user conflicts, resource degradation or safety hazards
	SMAs	Coyote Mtns./Hells Canyon	Patrol, visitor registration, traffic counters, estimates	Visitor days	Check counters weekly in heavy use periods	Collected data indicates increased visitor use/yr. or sustained use that requires additional or improved facilities
	ORV management	Areawide; emphasize closed areas	Aerial reconnaissance and ground patrol	Visitor days and violations	1 fall, 1 winter flight/yr.; ground patrol in heavy use periods or more often	Three violations noted/season on any given closed area
	CRMAs	Five CRMAs	Review plan/monitor CRMA	Plans completed	Annual review/update plan with cooperating agency	Cooperative agency unable to deliver visitor services, user conflicts or need for additional facilities

Source: Phoenix District files.

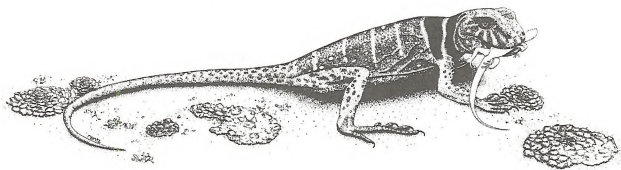
¹USDI. A Runoff and Soil Loss Monitoring Technique using Paired Plots. Technical Note 368. Denver, Colorado. August 1985.

²USDA. Universal Soil Loss Equation. Conservation Planning Note No. 11, Arizona. Phoenix, Arizona. September 1976.

³USDA. Soil Conservation Service. 1976. National Range Handbook. Washington, D.C.

⁴USDI. Bureau of Land Management. 1985. Rangeland Monitoring Trend Studies. T.R. 4400-4. Denver, Colorado.

⁵USDI. Bureau of Land Management. 1984. Rangeland Monitoring Utilization Studies. T.R. 4400-3. Denver, Colorado.





GLOSSARY REFERENCES AND INDEX



GLOSSARY

The following abbreviations are used in this RMP. Those abbreviations that represent terms are defined in the glossary.

ACEC	Area of critical environmental concern
AG&FD	Arizona Game and Fish Department
AMP	Allotment management plan
APS	Arizona Public Service Company
ARPA	Archaeological Resources Protection Act
AU	Animal unit
AUM	Animal unit month
BLM	Bureau of Land Management
BOR	Bureau of Reclamation
C&MU	Classifications and multiple uses
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CEQ	Council on Environmental Quality
CRMA	Cooperative recreation management area
CRMP	Coordinated resource management plan
EA	Environmental assessment
EIS	Environmental impact statement
EPA	Environmental Protection Agency
ERMA	Extensive recreation Management area
ESA	Endangered Species Act
FLPMA	Federal Land Policy and Management Act
FWS	Fish and Wildlife Service
HAZMAT	Hazardous materials
HMAP	Herd management area plan
HMP	Habitat management plan
IMP	Interim management policy
MFP	Management framework plan
MOA	Memorandum of agreement
MOU	Memorandum of understanding
MSA	Management situation analysis
NEPA	National Environmental Protection Act
NHPA	National Historic Preservation Act
NRQ	National Register quality
NWPS	National Wilderness Preservation System
ORV	Off-road vehicle
R&PPA	Recreation and Public Purposes Act
RCA	Resource conservation area
RMA	Recreation management area
RMP	Resource management plan
SHPO	State Historic Preservation Officer
SMA	Special management area
USDI	U. S. Department of the Interior
USF&WS	U.S. Fish and Wildlife Service
WSA	Wilderness study area

ACTIVITY PLAN: A more detailed and specific plan or program of actions to implement RMP decisions over some specified time period. Examples include allotment management plan, recreation area management plan and habitat management plan.

ADVERSE EFFECT (Cultural Resources): Alteration of the characteristics which contribute to the use(s) determined appropriate for a cultural resource or which qualify a cultural property for the National Register to such a degree that the appropriate use(s) are diminished or precluded or the cultural property is disqualified from *National Register* eligibility. Criteria in the regulations of the Advisory Council (36 CFR Part 800) guide the determination of adverse effects.

ALLOTMENT: An area of land assigned to one or more livestock operators for grazing livestock. Allotments generally consist of BLM land but may also include state-owned and private land. An allotment may include one or more separate pastures. Livestock numbers and seasons of use are specified for each allotment.

ALLOTMENT MANAGEMENT PLAN (AMP): A livestock grazing management plan for a specific allotment based on multiple-use resource management objectives. The AMP considers livestock grazing in relation to other uses of the range and in relation to renewable resources—watershed, vegetation and wildlife. An AMP establishes the seasons of use, the number of livestock to be permitted on the range and the rangeland developments needed.

ANIMAL UNIT (AU): One mature (1,000-pound) cow or its equivalent (four deer, five pronghorns, five bighorn sheep, 1.25 elk, one horse or two burros) based upon an average daily forage consumption of 26 pounds of dry matter per day.

ANIMAL-UNIT MONTH (AUM): The amount of forage necessary for the sustenance of one animal for one month, e.g., one deer for one month equals one deer AUM.

APPARENT TREND: Immediate or short-term tendency (used mainly for grazing in this RMP/EIS).

AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC): An area of public land that requires special management attention in order to protect and prevent irreparable damage to important historic, cultural or scenic values, fish

and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards.

BAJADA: Outwash slope at the base of a mountain consisting of fragments of rock.

BASE METAL: A metal commonly used in industry by itself rather than alloyed with other metals. Generally considered to be one of the following—copper, lead, zinc, tin or mercury (*Dictionary of Geologic Terms*, Anchor Press, 1979).

BIGHORN SHEEP LAMBING GROUNDS: Areas where bighorn sheep usually go to give birth—usually isolated mountainous areas.

BIGHORN SHEEP YEARLONG USE AREA: An area of land a bighorn sheep population normally ranges over in pursuit of basic life requirements: food, cover, forage and space.

BLOCK (verb)/BLOCKED-UP (adjective): v. to consolidate like things, such as ownership of land, e.g., the BLM acquires privately owned acreage in the middle of a large area of public land.

CANDIDATE SPECIES:

Category I: Plant and animal species for which the USF&WS currently has on file substantial information to support a proposal to list as threatened or endangered.

Category II: Plant and animal species for which current information indicates that a proposal to list as threatened or endangered is possibly appropriate, but for which more information is needed to support a listing proposal.



CHECKERBOARD LAND: Areas with tracts of intermingled ownership, such as those where the railroad owns alternate sections.

COMMUNITY: A group of plants and animals living together in a common area and having close interactions.

CONSERVATION FOR FUTURE USE: A cultural resource will be separated and protected from other noncompatible land uses and preserved in place because (1) that particular site type is scarce or unique, (2) its information potential cannot be realized through available archaeological methods or (3) it represents an outstanding example of a particular site type.

COOPERATIVE RECREATION MANAGEMENT AREA (CRMA): An area of public land cooperatively managed by the BLM and another governmental entity.

COORDINATED RESOURCE MANAGEMENT PLAN (CRMP): A plan for management of one or more allotments that involves all the affected resources, e.g., range, wildlife and watershed.

CRITICAL WILDLIFE HABITAT: The area of land, water and airspace required for the normal needs and survival of a species.

CRUCIAL WILDLIFE HABITAT: That part of the habitat of a wildlife species that is essential to its survival and perpetuation as a population.

CULTURAL PROPERTY: Any definite location of past human activity, habitation or use identified through a field inventory (see below), historical documentation or oral evidence. This term may include (1) archaeological or historic sites, structures and places and (2) sites or places of traditional cultural or religious importance to a specific group, whether or not represented by physical remains. Cultural properties are managed by the system of inventory evaluation and protection and use (see Appendix 6).

CULTURAL RESOURCES: Those fragile and nonrenewable remains of human activity, occupation or endeavor reflected in districts, sites, structures, buildings, objects, artifacts, ruins, works of art, architecture and natural features that were of importance in human events. These resources consist of (1) physical remains, (2) areas where significant human events occurred—even though evidence of the event no longer remains—and (3) the environment immediately surrounding the resource. Cultural

resources, including both prehistoric and historic remains, represent a part of the continuum of events from the earliest evidences of man to the present day.

CULTURAL RESOURCE INVENTORY: A descriptive listing and documentation including photographs and maps of cultural resources; included are the processes of locating, identifying and recording sites, structures, buildings, objects and districts through library and archival research, information from persons knowledgeable about cultural resources and varying levels of intensity of on-the-ground field surveys.

Class I: A professionally prepared study that compiles, analyzes and synthesizes all available data on cultural resources. Information sources for this study include published and unpublished documents, Bureau inventory records, institutional site files and state and national register files. Class I inventories may have prehistoric, historic and ethnological/sociological elements. These inventories are periodically updated to include new data from other studies and Class II and III inventories (see next entries).

Class II: A professionally conducted, statistically based sample survey designed to describe the probable density, diversity and distribution of cultural properties found in a large area. This is accomplished by projecting the results of intensive survey carried out over limited portions of the target area. Within individual sample units, survey aims, methods and intensities are the same as those applied in Class III inventory (see below). Class II inventory may be conducted in several phases using different sample designs to improve statistical reliability.

Class III: A professionally conducted intensive survey of an entire target area aimed at locating and recording all visible cultural properties. This survey is accomplished through systematic inspections commonly carried out by a crew of trained observers who walk a series of close-interval parallel transects until the area has been thoroughly examined.

CULTURAL SITE: A physical location of past human activities or events. Cultural resource sites are extremely variable in size and range from the location of a single cultural resource object to a cluster of cultural resource structures with associated objects and features. Prehistoric and historic sites which are recorded as cultural resources have sociocultural or scientific values and meet criterion of being more than 50 years old.

CULTURAL RESOURCE VALUES: Values attributed to cultural resources which are either of scientific (information), sociocultural (public) or conservation concern.

DESIGNATED CORRIDOR: A linear area of land with defined and recognized boundaries and capacities having ecological, technical, economic, social or similar advantages over other areas for the present or future location of rights-of-way and which have been identified and designated by legal public notice.

ECOSYSTEM: A complex self-sustaining natural system which includes living and nonliving components of the environment and the circulation of matter and energy between organisms and their environment.

ECOTONE: A transition line or strip of vegetation between two communities, having characteristics of both kinds of neighboring vegetation as well as characteristics of its own (Soil Conservation Society of America, 1970).

ENDANGERED SPECIES: An animal or plant whose prospects of survival and reproduction are in immediate jeopardy, and as further defined by the Endangered Species Act of 1973, as amended.

ENDANGERED SPECIES ACT OF 1973 (as amended): Federal law to ensure that no federal action will jeopardize federally listed or proposed threatened or endangered species of plants or animals.

ENVIRONMENTAL ASSESSMENT (EA): The procedure for analyzing the impacts of some proposed action on a given environment and the documentation of the analysis. An EA is similar to an environmental impact statement (EIS) but is generally smaller in scope. An EA may be preliminary to an EIS.

ENVIRONMENTAL IMPACT STATEMENT (EIS): A written analysis of the impacts on the environment of a proposed project or resource management plan.

EROSION: The wearing away of the soil and surface by running water, wind, ice or other geological agents.

EVALUATION (Cultural Resources): The analysis of cultural resource inventory records, the application of professional judgment to identify characteristics that contribute to possible uses for recorded cultural resources, and the recommendation of appropriate use(s) for each resource or group of resources. *National Register* eligibility criteria, 36 CFR Part 60, are interpreted through or with reference to Bureau evaluation criteria.

EXTENSIVE RECREATION MANAGEMENT AREAS (ERMAs): Areas where recreation is unstructured and dispersed and where minimal recreation-related investments are required. ERMAs, which constitute the majority of Phoenix Resource Area public land, provide recreation visitors the freedom of choice with minimal regulatory constraint.

FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976 (FLPMA): Public Law 94-579, which gives the BLM legal authority to establish public land policy, to establish guidelines for administering such policy and to provide for the management, protection, development and enhancement of the public land.

FEDERAL LAND: Land owned by the United States, without reference to how the land was acquired or which federal agency administers the land, including mineral or coal estates underlying private surface.

FLOODPLAIN: The nearly level alluvial plain that borders a stream or river and is subject to inundation during high water periods; the relatively flat area or lowland adjoining a body of standing or flowing water which has been or might be covered by floodwaters.

HABITAT: A specific set of physical conditions that surround a species, group of species or a large community. In wildlife management, the major constituents of habitat are considered to be food, water, cover and living space.

HABITAT MANAGEMENT PLAN: A written and officially approved plan for a specific geographic area which identifies wildlife habitat and related objectives, establishes the sequence of actions for achieving objectives and outlines procedures for evaluating accomplishments.

HAZARDOUS WASTE OR MATERIAL (HAZMAT): Any substance that poses a threat to the health or safety of persons or the environment. These include any material that is toxic, ignitable, corrosive or radioactive.

HERD MANAGEMENT AREA PLAN (HMAP): A plan for the management of a geographic area used by wild horses or burros. A HMAP outlines details of a burro or horse capture plan, adoption program and long-term management of populations.

INTERIM MANAGEMENT POLICY AND GUIDELINES FOR LAND UNDER WILDERNESS REVIEW (IMP): A BLM document, dated December 12, 1979, which defines the policy for management of wilderness study areas so as not

to impair their suitability for preservation as wilderness. The IMP will apply to the land until Congress determines whether or not it is to be designated wilderness.

LEACH MINING: The technique of mineral extraction where a variety of chemical solutions are used to extract minerals which are soluble within those liquids. This technique may be used to extract minerals from abandoned tailings, crushed ores and in-place ores.

LEASABLE MINERALS: Minerals such as coal, oil shale, oil and gas, phosphate, potash, sodium, geothermal resources and all other minerals that may be acquired under the *Mineral Leasing Act of 1920*, as amended.

LEASE: An instrument through which interests are transferred from one party to another, subject to certain obligations and considerations.

LEGAL DESCRIPTION: The description of a particular parcel of land according to the official plat of its cadastral survey, including Township, Range and Section numbers.

LOCATABLE MINERALS: Any valuable mineral that is not salable or leasable, including gold, silver, copper, tungsten and uranium, etc. (Maley 1983).

LODE MINING: Extraction of minerals from deposits which are still in place within the confines of the surrounding country rock.

LONG TERM: Up to 20 years following the beginning of the implementation phase for the RMP.

LONG-TERM IMPACTS: Impacts occurring five to 20 years or more following implementation of action.



MANAGEMENT FRAMEWORK PLANS (MFPs):

The 1975 land use plans for public land in the Phoenix District that provide a set of goals, objectives and constraints for a specific planning area to guide the development of detailed plans for the management of each resource.

MANAGEMENT SITUATION ANALYSIS (MSA):

A step in the BLM planning process that identifies existing management, physical resources and opportunities to meet the needs, concerns and issues identified through resource management planning. The MSA results in a reference document, which is kept in the resource area office. The MSA document is open for public inspection but is not distributed to the public.

MANAGEMENT USE: Study of a cultural resource to obtain specific information on (1) the kinds and rates of natural and human-caused deterioration or (2) the effectiveness of protection measures.**MEMORANDUM OF AGREEMENT:** See Memorandum of Understanding.**MEMORANDUM OF UNDERSTANDING (MOU):**

Signed pact between two entities agreeing to some course of action or inaction.

METALLIC MINERALS: Those minerals whose native form is metallic or whose principal products after refinement are metallic.**MILL SITE:** A site for processing and refinement of mineral materials.**MINERAL ENTRY:** The location of mining claims by an individual to protect his right to a valuable mineral.**MINERAL ESTATE:** Mineral and/or subsurface ownership.**MINERAL WITHDRAWAL:** Closure of land to mining laws, including sales, leasing and location, subject to valid existing rights.**MITIGATION:** The lessening of a potential adverse effect by applying appropriate protection measures, the recovery of cultural resource data or other measures.**MITIGATION MEASURES:** Methods or procedures committed to by BLM for the purpose of reducing or lessening the impacts of an action.**MOTORIZED TRAVEL:** Travel in any motorized vehicle for recreation purposes; includes driving or riding in off-road areas (ORV travel).**MULTIPLE-USE:** The management of public land and its various resource values so that they are

used in the combination that will best meet present and future public needs.

NATIONAL ENVIRONMENTAL POLICY ACT

(NEPA) OF 1969: A law enacted on January 1, 1970 that established a national policy to maintain conditions under which man and nature can exist in productive harmony and fulfill the social, economic and other requirements of present and future generations of Americans. It established the Council on Environmental Quality for coordinating environmental matters at the federal level and to serve as advisor to the President on such matters. The law made all federal actions and proposals which could have significant impact on the environment subject to review by federal, state and local environmental authorities.

NATIONAL HISTORIC PRESERVATION ACT

(NHPA): The primary federal law providing for the protection and preservation of our cultural resources. Making it a national policy to preserve our cultural heritage, NHPA established the *National Register of Historic Places*, the Advisory Council on Historic Preservation and State Historic Preservation Officers.

NATIONAL REGISTER OF HISTORIC PLACES

(NRHP): A list of districts, sites, buildings, structures and objects significant in American history, architecture, archeology and culture maintained by the Secretary of the Interior. Expanded as authorized by Section 2(b) of the *Historic Sites Act of 1935* (16 U.S.C. 462) and Section 101(a)(1) (A) of the *National Historic Preservation Act*.

NATIONAL REGISTER QUALITY SITE:

A cultural resource site determined to be eligible for nomination to the *National Register of Historic Places* by virtue of its local, state or national significance.

NATURAL AREA:

Land managed for (1) retention of its typical or unusual plant or animal types, associations or other biotic phenomena or (2) its outstanding scenic, geologic, soil or aquatic features or processes.

NONPOINT POLLUTION:

That from scattered sources, as opposed to pollution from one location, e.g., manufacturing plant.

NONUSE:

Current authorized grazing use (in AUMs) that is not used during a given time period. Nonuse is applied for and authorized on an annual basis.

OFF-ROAD VEHICLE (ORV): Any motorized vehicle designed for crosscountry travel over any type of natural terrain. Exclusions (from Executive Order 11644, as amended by Executive Order 11989) are any military, fire, emergency or law enforcement vehicles while being used for emergency purposes, any vehicle whose use is expressly authorized or otherwise officially approved, vehicles in official use and any combat support vehicle in times of national defense emergencies.

OFF-ROAD VEHICLE DESIGNATIONS:

Open: Designated areas and trails where ORVs may be operated (subject to operating regulations and vehicle standards set forth in BLM Manuals 8341 and 8343).

Limited: Designated areas and trails where the use of ORVs is subject to restrictions, such as limiting the number or types of vehicles allowed, dates and times of use (seasonal restrictions); limiting use to existing roads and trails or limiting use to designated roads and trails. Combinations of restrictions are possible, such as limiting use to certain types of vehicles during certain times of the year.

Closed: Designated areas, roads and trails where the use of ORVs is permanently or temporarily prohibited. Emergency use of vehicles is allowed.

OPEN SPACE RECREATION AREA: In these areas, significant recreation problems are minimal and intensive recreation management is not required. Minimal management actions related to the Bureau's stewardship responsibilities are adequate in these areas.

PATENT: A government deed that conveys legal title for land to an individual or another government entity.

PLACER DEPOSIT: An alluvial or glacial deposit, as of sand or gravel, containing particles of gold or other valuable minerals.

PLACER MINING: That form of mining in which the surficial detritus (surface soil) is washed for gold or other valuable minerals—principally gold in the RMP area (*Dictionary of Geologic Terms*, Anchor Press, 1979).

PRESCRIBED BURNING: Planned burning of vegetation for a specific purpose, e.g., betterment of ecological conditions.

PROPOSED LAND USE: Any use of land or resources which requires an authorized officer's formal approval, whether proposed by the

Bureau or by an outside applicant (used in cultural resources).

PUBLIC LAND: Vacant, unappropriated and unreserved land that never left federal ownership; also, land in federal ownership obtained in exchange for public land or for timber on public land; land administered by the BLM.

PUBLIC PARTICIPATION: Part of the BLM's planning system that provides the opportunity for citizens as individuals or groups to express local, regional and national perspectives and concerns in the rulemaking, decisionmaking, inventory and planning processes for public land. This includes public meetings, hearings or advisory boards or panels that may review resource management proposals and offer suggestions or criticisms for the various alternatives considered.

PUBLIC VALUES: A cultural property is eligible for consideration as an interpretive exhibit-in-place, a subject of supervised participation in scientific or historical study or related educational and recreational uses by members of the general public.

QUARRY: An open or surface working, usually for the extraction of building stone such as slate, limestone, etc. (*Dictionary of Geologic Terms*, Anchor Press, 1979).

RECREATION AND PUBLIC PURPOSES ACT (R&PPA): This act authorizes the Secretary of the Interior to lease or convey public land for recreational and public purposes under specified conditions to states or their political subdivisions and to nonprofit corporations and associations.

RECREATION MANAGEMENT AREA (RMA): An area requiring explicit recreation management to achieve the Bureau's recreation objectives and to provide specific recreation opportunities. Special management areas are identified in the RMP, which also defines the management objectives for the area. The BLM's recreation investments are concentrated in these areas.

RECREATIONAL OPPORTUNITY: Those outdoor recreational activities which offer satisfaction in a particular physical, social and management setting in the EIS area. These activities are primarily hunting, fishing, wildlife viewing, photography, boating and camping.

RESEARCH NATURAL AREA (RNA): A natural area established and maintained for research and education, which may include (1) typical or unusual plant or animal types, associations or other biotic phenomena or (2) characteristic or

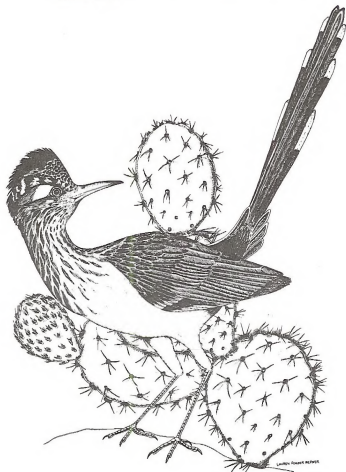
outstanding geologic, soil or aquatic features or processes. The public may be excluded or restricted from such areas to protect studies.

RESOURCE AREA: The smallest administrative subdivision of a BLM district.

RIPARIAN HABITAT (AREAS): Areas of land directly influenced by permanent water and having visible characteristics, e.g., vegetation, reflective of the presence of permanent water, i.e., surface and/or subsurface.

SALABLE MINERALS: Minerals such as common varieties of sand, stone, gravel, pumicite and clay that may be acquired under the Materials Act of 1947, as amended.

SALINE SOIL: A soil with a high salt content. The salt content is measured by the electrical conductivity of a saturated soil extract. Soils are placed into salinity classes based on the salt content as determined by electrical conductivity (umhos/cm): nonsaline, 0 to 4,000; slightly saline, 4,000 to 8,000; moderately saline, 8,000 to 16,000; strongly saline, more than 16,000 umhos/cm.



SCOPING PROCESS: An early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action. Scoping may involve public meetings, field interviews with representatives of agencies and interest groups, discussions with resource specialists and managers, written comments in response to news releases, direct mailings and articles about the proposed action and scoping meetings.

SHORT TERM: The period of time needed to implement management's decisions following the completion of the EIS, approximately five years.

SIGNIFICANCE: A high degree of importance as indicated by either quantitative measurements or qualitative judgments. Significant issues and impacts require explicit consideration in the preparation of a plan. Significance may be determined by evaluating characteristics pertaining to location, extent, consequence and duration of an action or impact.

SOCIOCULTURAL USE: A social and/or cultural group perceives that a cultural resource, place, structure or geographic location has characteristics which help to maintain the group's heritage or identity.

SPECIAL MANAGEMENT AREA (SMA): An area receiving more intensive management for one or more resources, such as riparian, cultural or wildlife.

SPECIAL STATUS SPECIES: Wildlife and plant species either federally listed or proposed for listing as endangered or threatened, state-listed or BLM-determined priority species.

SPLIT ESTATE: The surface estate and the mineral estate of a parcel of land belong to different owners.

STATE HISTORIC PRESERVATION OFFICER: The official who is appointed by the Governor to be responsible for administering the State Historic Preservation Program pursuant to Section 101(b)(1) of the *National Historic Preservation Act*.

STATE INDEMNITY SELECTION: Land owed to the state to replace land that the state would have received as a term of statehood but did not because the land was already appropriated under the public land laws or was within adjacent states.

SUBSURFACE MINERALS: Minerals found below the earth's surface, including oil and gas.

THREATENED SPECIES: Any plant or animal species that is likely to become an endangered species throughout all or a significant portion of its range, as defined by the U.S. Fish and Wildlife Service under the authority of the *Endangered Species Act of 1973*.

TRESPASS: The use of public land without proper authority, resulting either from a willful or negligent act.

VEGETATION: Plants in general or the sum total of the plant life above and below ground in an area.

WATER QUALITY: The chemical, physical and biological characteristics of water with respect to its suitability for a particular use.

WATERSHED: A total area of land above a given point on a waterway that contributes runoff water to the flow at that point.

WATERSHED CONDITION: An assessment, or categorization, of an allotment in terms of current erosion conditions, erosion hazards and the soil moisture/temperature regime.

WILDERNESS AREA: An area formally designated by Congress as a part of the National Wilderness Preservation System.

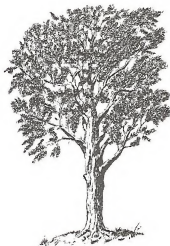
WILDERNESS STUDY AREA (WSA): A parcel of public land that has been found to possess the basic wilderness characteristics identified by Congress in the *Wilderness Act of 1964*; namely, naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, size of at least 5,000 acres, and the appearance of having been affected primarily by the forces of nature. Supplemental values such as geological, archaeological, historical, ecological or scenic features also may be present.

WITHDRAWAL: An action that restricts the disposal of public land and holds it for specific public purposes; also, public land that has been dedicated to public purposes.



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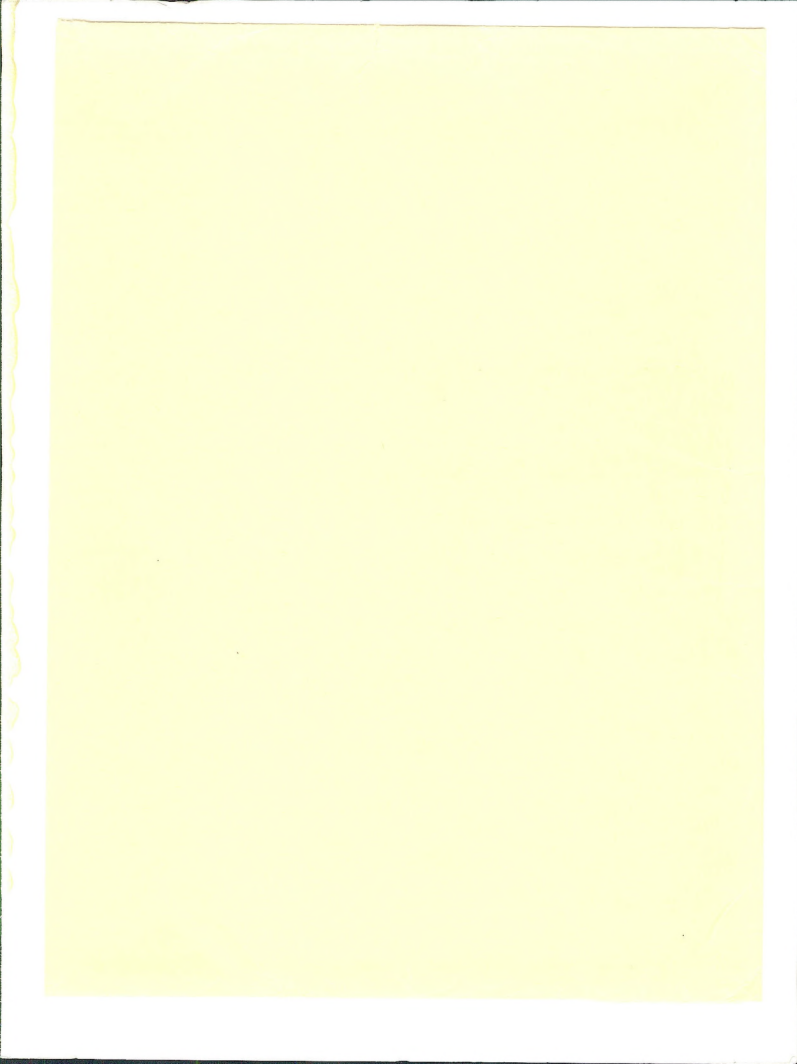
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